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EDITORIAL.

THE ILLINOIS VETERINARY BILL.

We very cheerfully give space to the communication of Prof. L. A. Merillat, of Chicago, published elsewhere in this issue. The bill referred to came into our hands through the courtesy of the writer of that letter, and we disclaim any intention of working at cross purposes with the veterinary profession of Illinois. When this bill was carefully read and reread by us we were innocent of a knowledge that it had been endorsed by the associations of that State, and submit that from an exterior view one would hardly think that it could have been. If, under the exigencies of the political situation in that State, the bill in question is the best that can be enacted it is a matter resting entirely with the profession there, and others must be satisfied. It would appear, however, to one not thoroughly versed with the condition of affairs, that no law would be preferable to this one. We as thoroughly negative an intention to refer to the present State Veterinarian in a personal sense. He may be the peer of his predecessor, or his superior. We did not in this matter refer to men, but to methods, and the REVIEW'S reference to Dr. Lovejoy as a "political creature" was in the sense that he was the "creation" of politics, for surely there was no demand on the part of the veterinary profession for his appointment; but he was forced on the State by virtue of that peculiar factor in politics known as a "pull." However honorable he may be personally, the gifted writer

of the communication cannot believe that he could have become in one lifetime as proficient in the intricate propositions of modern scientific medicine as though he had received the basis of his education within the walls of a veterinary school, and he will not claim that the profession in his State can afford to place in the most important position a non-graduate, when there are hundreds of men who would honor both the post and profession through their ability to direct its affairs along scientific lines.

If the bill means literally what it says it strikes very harshly upon ears which are accustomed to hear clearer distinctions between educated veterinarians and those without professional training. If it means that it does not intend to do what it claims or insinuates that it will do, it is deceiving the lawmakers and the people. If that commission has the power to license a candidate who has never attended a college, or indulged in practice, the law puts a premium of $20 a piece on dishonesty, whether the commission accepts it or not.

We reiterate, that the measure is not what it should be, and the question may well be asked, "Is it not better to have no law on the subject than the one proposed?"

FACTORS CONTRIBUTING TO VETERINARY PROGRESS.

To any intelligent person following the course of veterinary medicine in America, a very rapid improvement in men and methods must be apparent. The solution of many problems in sanitary medicine is an evident indication that minds are active along scientific lines and that ability is guiding the efforts put forth. To illustrate the force of these remarks it is but necessary to refer the reader to the address delivered by President Salmon at the opening of the last meeting of the United States Veterinary Medical Association, printed in full in the REVIEW for October, wherein a complete résumé of the advance made in this department is given. In the character of the associational work being done we get further evidence of the permanent progress

of our profession, the papers presented being usually the result of careful reasoning upon subjects of intelligent observation and experiment, while the discussions thereon reflect the fertility of active brains. The profession is forcing public appreciation and respect largely through the dignity, education and uprightness of its members, who have expunged the "horsey" or "sporting" element in their personality, which was at one time thought to be an inseparable accompaniment.

What are the factors operating to produce these results? Greatest credit is due to the schools of veterinary medicine, which have gradually increased their requirements of preliminary education until it has reached that point when an accepted student must be a man of fair education—the basis of all progress. When once in the profession this educated veterinarian finds ready to increase his accomplishments the veterinary association and the professional journal, and, availing himself of either or both, is carried onward in an irresistible stream that flows toward perfection of knowledge and reward of merit. It is the belief of the writer that the grasping of the opportunities thus offered are as essential to the completeness of veterinary education as the school is to its incipiency.

NEW YORK HORSE DEALERS declare that not since 1892 has there been anything like the inquiry for horses that there is this spring, with good prices and the supply away below the demand. The riding academies are filled to overflowing, and there seems to be a general awakening to the fact that the horseless age has been postponed some two thousand years.

THE REVIEW'S desk is loaded down with the contributions of its collaborators and correspondents. We ask the indulgence of those who have kindly forwarded manuscript of papers, case reports, etc., assuring them of their appreciation and that they will be published as rapidly as possible. During the summer months, when association meetings are omitted, we will have ample opportunity to catch up.

ORIGINAL ARTICLES.

NOTES ON ODONTOMES.

By W. L. Williams, Professor of Surgery and Obstetrics, New York State Veterinary College.

Read before the New York State Veterinary Medical Society, September, 1898.

Literature upon tooth tumors in domesticated animals is scant, standard works on surgery and dentistry being well-nigh silent, compelling the student to rely almost wholly upon current veterinary literature.

In the latter field J. Bland Sutton * contributes a highly instructive article dealing chiefly with the origin and classification of these neoplasms, upon which the writer † based a somewhat extended contribution dealing largely with the clinical and operative phases of the subject, adding later a brief case report.‡ Other case reports occur here and there throughout our literature, though largely fragmentary in character.

Desiring to avoid repetition, we confine ourselves to a few notes which though not directly united by logical relationship, may yet possess interest to the student and practitioner as related to the subject in chief. First, let us remark that the horse is pre-eminently subject to tooth tumors.

While odontomes have been recorded by Sutton and others in man, goats, bears, and other animals, we do not find them nearly so frequent in any other as in the horse. This tendency to aberration in the development of horses' teeth is not confined to the production of tooth tumors within the normal alveoli, but very frequently evinces itself in the form of supernumerary teeth, such as the imperfect supernumerary molars or wolf teeth, and not infrequently extra molars of full or exaggerated size situated behind or before, outside or inside the normal molar arcade, or we may find a few extra incisors or a complete double set.

* *Jour. Comp. Med.*, Vol. XI., p. 1.

† Am. Vet. Review. Vol. XV., p. 1.

‡ *Ibid.*, Vol. XVIII., p. 101.

Nor is nature apparently satisfied with these aberrations within or about the dental alveoli, but develops a variety of odontoid formations in such organs as the ovaries, testes and especially at the base of the ear. These ear teeth or ear fistulæ are of more than passing interest, being practically the exclusive heritage of the horse, while their origin and relations are shrouded in mystery. The parts composing them are typical dental tissues, being especially rich in what appears an extra hard and translucent enamel, but how, where or why they form seems undetermined.

These odontoid masses are found firmly attached at or near the base of the ear, and similar neoplasms having a like relation to skeletal bones are not known elsewhere outside the usual alveoli. These facts suggest some peculiarities of the so-called petrous portion of the temporal bone of the horse. While in most mammalia the petrous and squamous portions of the temporal bone become fused, it remains so free in solipeds that even in the cranial skeleton of old animals, if the soft tissues are dissolved, the ear bone is loose and moveable within its socket. Thus the horse has a real distinctive ear bone, a part of no other bone, the most moveable of all cranial bones, and set in a depression in the surrounding cranial bones almost as a tooth within its alveolus, and having within it an important sensory nerve, and the bony tissue attains a hardness approaching dental tissue.

Among the many cases of recorded ear teeth there is a sad deficiency in precision as to the relations and attachments of the neoplasms to neighboring parts, and the ultimate result of attempts at surgical treatment. We do not know the precise location or attachments to the neighboring bones, whether the tooth-like mass was fused with the bone or fixed in an alveolus or calyx, and although deaths are recorded due to fracture of the cranial bones in attempts at removal, the recorded recoveries are as a rule somewhat vague, being apparently based largely upon non-return of the patient, which might follow either recovery or an unchanged condition after the first operation. We have ob-

served some supposedly recovered cases which were not at all benefitted. If these masses have a calyx or alveolus and the entire odontoid tumor is removed certainly permanent recovery should and no doubt does occur.

The odontoid masses in the testicles and ovaries are of both scientific and practical interest, tending to render the genital gland useless and causing the testicle to remain abdominal in some cases. They frequently assume a form and histological structure closely simulating a normal tooth.

Our chief interest must, however, be centred in those odontomes occurring within or near a normal alveolus and representing either a normal tooth follicle or a germ emanating from or near by one of these.

As we have insisted in our prior contribution, most of the serious diseases of horses' teeth are due primarily to aberrations in their development and have their origin at an early age though coming to our notice sometimes only after a lapse of several years. In our experience fully 90 per cent. of major dental operations are necessitated by these aberrations, and when critically studied a large proportion of the cases of so-called "caries" of the molars and of "nasal gleet" are due to this cause.

Admitting the possibility and existence of primary caries of equine molars, we have as yet failed to secure a specimen exhibiting necrosis of the dentine in active progress except when evidently secondary to other important defects. True, most authors describe caries in equine molars and lead the student to believe it common, though Müller* agrees in his observations with our findings.

Those authors who describe "caries" of horses' molars usually figure the disease as occurring at a part of the tooth in which dentine should not normally occur. In those specimens which we have been enabled to collect which simulate caries or which might by some be termed caries we find in addition to various irrelevant changes:

1. Deep infundibuli in the ivory column on the tabular sur-

**Speciellen Chirurgie*, S44.

face due to the rapid wearing away of soft ivory in aged horses—in which class of animals the so-called caries is wanting.

2. The absence of the ivory column at some portion of the tooth from crown to fang, the adjacent enamel layers being free from any remnants of dentine which should here and there persist in genuine necrosis of ivory.

3. A total absence in superior molars of the column of cement which should fill the central infundibulum of enamel from table to fang.

These two latter conditions inevitably lead to early longitudinal splitting of the tooth. If the cement fails to form within the central infundibulum, food presses into the cavity as soon as the tooth erupts and fracture of enamel into pulp cavity quickly results. If dentine fails to form, the tooth has not been long in wear until the arch of enamel wears through, exposing the vacant ivory space with impaction of food, infection, suppuration, fistulæ, etc.

Thus we find explanation for the fact that most major dental operations on horses are called for upon young animals ranging from two or three months to five or six years of age, or if in aged animals, these have a history of disease dating back to early life.

In our prior contribution we described and illustrated epithelial or enamel, compound follicular, radicular or dentine and composite odontomes, follicular cysts and cementomata. We desire to add two unique cases, one a fibrous odontome, completing the list of species as described by Sutton, the other a multiple composite odontome, representing gross aberrations in the tooth germs of three or four contiguous superior pre-molars.

Heretofore fibrous odontomes have been recorded in rickety children and young caged animals, but so far as we have found, not in the horse.

The patient was a 12-year-old black mare of common breed, reared in a locality where osteoporosis and perhaps other related maladies are not uncommon, but offering no history of constitutional affection. She was thrifty and apparently sound until

about two years of age, when she began to show symptoms of dyspnœa. Examination revealed a moderately firm, fibroid-like tumor completely filling the right anterior nares. A country practitioner removed a piece of the tumor as large as a hen's egg and reported that a piece of "bone" had been broken and was projecting into the nostril, which he could grasp with forceps but could not dislodge. The removal of a portion of the tumor relieved somewhat the dyspnœa, the patient grew to moderate size and did ordinary farm work without apparent great difficulty and kept in good condition, but continued to exhibit some dyspnœa, nasal discharge and fœtor of breath.

Ten years subsequent to the advent of the disease she was on account of recent serious increase of dyspnœa and debility presented at the New York State Veterinary College Clinic, much exhausted from a journey of 14 miles, showing extreme dyspnœa, respiration oral and breath fœtid. The right nostril was completely occluded by a tumor projecting from behind forwards to within two inches of the opening of the nostril, while its size was so great that it had pressed the septum nasi over against the left turbinated bones, almost entirely closing the left nostril and necessitating oral breathing. The tumor was dark red in color, firm like a fibroma, smooth on the exposed surface and not attached to the adjacent nasal walls for some distance from the anterior end. The crown of the first right superior pre-molar was worn even with the gums, the other teeth being apparently normal.

After relieving the dyspnœa by tracheotomy, the patient was placed upon the operating table and the right nasal wall trephined slightly above the juncture of maxillary and nasal bones. We were above the tumor and found the nasal passage completely filled with decomposing food which had been pressed through an opening behind the first pre-molar and its exit anteriorly being prevented by the tumor, it accumulated in the passage until being completely filled it gradually dropped into the fauces as additions were pressed in in front.

The size and form of tumor having been determined another

opening was made directly over the affected pre-molar about one inch from the alveolar border and from this opening the external alveolar wall was cut away down to the margin, thus laying bare the body of the tooth for its entire length. A punch was placed against the tooth and a few sharp blows dealt with a mallet, which so loosened the member that it was readily grasped by the crown and removed entire, tumor and all, through the opening in the cheek, leaving behind an immense opening from the mouth into the nasal chamber.

The patient succumbed 48 hours later from gangrenous pneumonia due to inhalation of putrid food, which had fallen into the fauces through the posterior nares, the inhalation being in all probability due to the dyspnœa provoked by the long journey prior to operating. While operating the head was slightly depressed, which, in addition to tracheotomy, should have sufficed to prevent inhalation during the operation. Nevertheless, while operating, decayed food in very small amount escaped through the tracheotomy tube, but apparently from below. The precaution was taken after the operation to thoroughly irrigate the trachea and bronchi with normal salt solution and hydrogen peroxide, which irrigation was repeated after 24 hours.

The tabular surface (C) of the tooth (Fig. I) is not unlike the ordinary wearing surface of a premolar, except it is apparently composed entirely of a rather soft dentine, while higher up toward the anterior portion of the body on the median side there appear some fragments of enamel (D). The dental tissues proper extend from C upward to a point midway between D and A. The remainder of the mass anterior to D and superior to the line above mentioned consists of fibroid tissue generally free from adhesions to surrounding parts and directly continuous with the dental tissues. The free end (B) is smooth and globular. At A, showing as a slight depression containing a small rounded mass, is a small islet of hard dental tissue, apparently dentine. At P is dentine, which by necrotic erosion had caused an opening through the bony palate by which food

was slowly pushed up behind the tooth and its tumor into the nasal passage.

In shape the tumor is a bent cylinder, measuring on its superior or convex border about 6 inches, on its inferior or concave border about 3½ inches, with an average thickness of 2 inches and weighing about 8 ounces av.

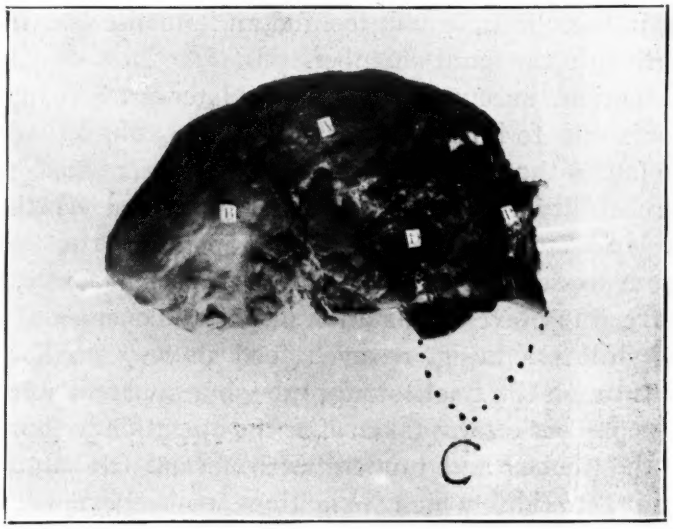

FIG. I.

Inspection of the tumor indicates that the neoplasm is the result of a fibrous proliferation of the tooth follicle, which impinged on the enamel and ivory organs to such a degree as to impair their development, and pushing upwards broke into the nostril and turning forwards grew down almost to the external nasal opening.

The second case we have to report is one of multiple composite odontomes in a two-year-old colt, sex and breed unknown, and history untold, except that the animal was destroyed because of the abnormality. Only the superior maxillæ are preserved, the right half of which is normal. In the left half (Figs. II, III and IV) the temporary premolars are normal and *in situ*, as are also the three molars, the first being in wear, the

second (or 5th) erupted but unworn, while the third molar, or 6th of the arcade (Figs. II and III), is not yet erupted. There is one apparently normal permanent premolar shown faintly

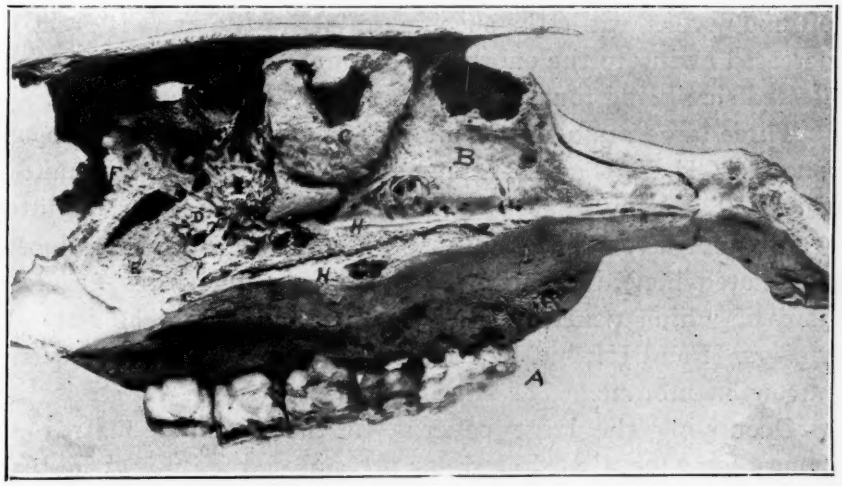

FIG. II.

through an artificial window at A in Fig. IV. It is apparently the second premolar, but is out of place, and while the crown

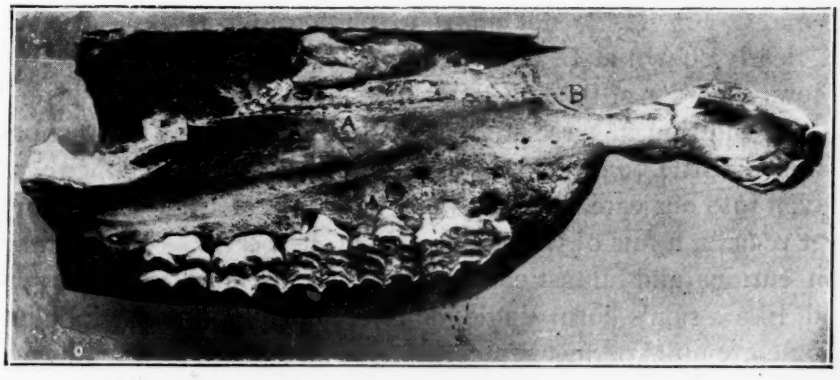

FIG. III.

is directed properly it is not in contact with the fang of either temporary premolar, but separated from these by aberrant

masses of dental tissue. Here all semblance to normality ceases and the process of dentition runs riot. The affected side of the face is enormously enlarged, as seen in Fig. IV, the facial bones, especially the superior maxillary, greatly bulged, soft and porous, while the specific gravity of the mass is greatly increased owing to the enormous amount of dental tissues, the affected side being four or five times as heavy as the normal.

Three large almost globular masses of fine, delicate porous bone (Fig. II, E, C and B) apparently represent the turbinated bones. The bony palate (Fig. II, H H) has been separated into two distinct layers and the space between occupied by loose cancellated bone, in which are imbedded numerous denticles, many of which penetrate through the bony palate, as seen at A, Figs. II and III, but had evidently not perforated the buccal mucous membrane.

Occupying the large caverns in the globular masses of spongy bone mentioned above as probably representing the turbinated bones, and behind the three masses in a fourth spheroidal cavity, are enormous irregular masses of dental tissue, chiefly ivory, rough, with sharp denticles or spurs, presenting in every direction like cockle-burs and weighing probably one pound each. The masses within the cavities of the sponge-like bones, B and C, Fig. II, do not show in photograph, while that of E is clearly shown at D, and the fourth cavity looking backwards shows a border of its denticular mass at F.

In addition to these masses the donor related that "thousands of little bones had dropped out" before the specimen was given into our care. These were no doubt denticles, as many yet remain, a few of which are shown in Fig. V. These take on curious and fantastic shapes; they are straight, curved, spiral, like a ram's horn, single, double, multiple, linear, globular. Some are quite perfect representatives of teeth in a general way, having a well-marked pulp cavity, around which are grouped in their normal sequence dentine, enamel and cement. Others, like the central mass in Fig. V, are indescribable irregular bunches of dentine or cement. Still other denticles are seen

which have both the form and structure of equine molars, the fangs of one of which is shown marked A, situated just above the bony palate midway between H and B in Fig. II.

The temporary premolars having developed and erupted normally, as have also the molars, it must be concluded that the aberrations had their origin in connection with the development of the germs of the permanent premolars, only one of which had apparently developed and its eruption prevented by the growth of odontoid masses between its crown and the temporary fang.

FIG. IV.

In our prior contribution we asserted that the prognosis of odontomes was very favorable under proper treatment. In a case like the last, had it been taken in time, the animal's life could probably have been saved, though at the expense of such great deformity as to nullify its value.

The first case related, though ending fatally, could have been favorably operated upon at an earlier date. The one case is extreme in its gross aberrations, while the other is no less extreme in point of neglect.

In the contribution cited we laid down as the rule of first importance in procedure that we should not apply force either by means of forceps or punch to an erupted tooth which might

be affected with odontoid enlargement until we had definitely learned its form and size, otherwise we might cause extensive and serious fractures of alveolar walls, palate, or other bones, but advised instead that the tooth be comminuted.

Recent experience in our clinics leads us to amend our rules. We now, in cases of erupted teeth which we suspect as being of an aberrant type, in the so-called tooth fistulæ, in those causing empyema of the facial sinuses and generally in those cases of serious dental diseases in young horses, trephine down upon the fang of the affected member, using a ¾ to ⅞ in. trephine, laying bare the entire fang, freeing it from its bony covering by gouge, chisel and forceps, then with chisel cut away the external alveolar wall the full width of the tooth from the trephine opening down into the oral cavity, thus laying the tooth bare on its external surface from end to end and side to side. We then comminute the member to such degree and remove the parts by such measures as circumstances may indicate by forceps, punch, or gouge, through mouth or laterally through the cheek.

We find several great advantages from our method of operating.

1. Simplicity. By proper control of hæmorrhage every step of the operation is plainly in sight, and the result of each move is clearly seen. It is easier, neater, and less painful to the animal than violent removal with heavy forceps or by means of the punch.

2. We avoid more certainly than by any other procedure injury to adjacent teeth which may necessitate further removals.

3. It causes less injury to the bones. A piece equal in area to the lateral surface of the tooth being removed clean, the other surrounding bones being left intact and unharmed, while by the usual methods extensive fissures and fractures are common. Especially is this true of operations on the inferior molars, where serious fractures at times occur, leading to tedious recovery, or even death of the patient, with litigations for malpractice or other disagreeable complications.

4. The wound is freely open and its progress readily watched. If pieces of dental tissue remain behind, so common by other methods, and always preventing recovery, they are readily observed as soon as granulations appear, and can be easily removed. The wound is cleaner, more readily dressed and the patient suffers less pain from dressing and stands more quietly.

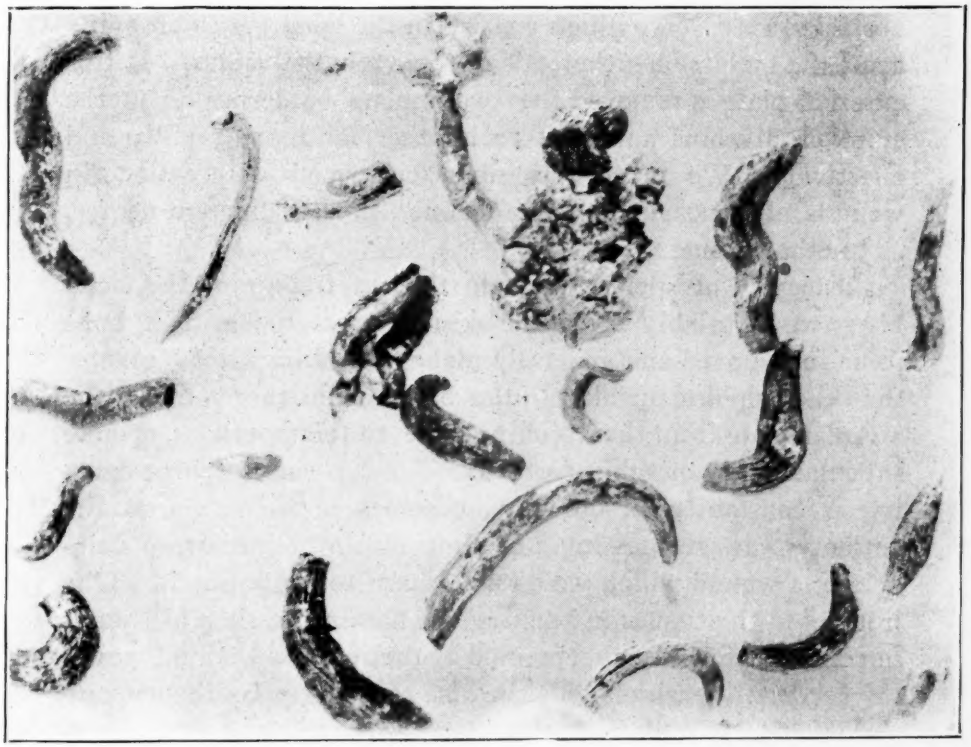

FIG. V.

5. It anticipates and prevents alveolar fistulæ, so common after other methods, not only because it permits free observation, facility for dressing and for the removal of fragments of tooth and bone, but prevents to a great degree the impaction of food in the vacant alveolus, which constitutes a fertile source of fistulæ.

6. If fistulæ persist after operating by the usual method, the removal of the alveolar plate by the above plan, causes recovery to take place, except when due to damage to a neighboring tooth, to a retained fragment of tooth, etc.

7. When oro-nasal fistulæ exist through alveolus or bony palate by which food passes from the nose to the mouth, as occurs frequently with odontomes, this line of treatment generally brings about prompt and radical cure by destroying the chief obstacle to recovery, which consists in the bony plates propping apart the molars on either side of the vacant alveolus. If this external plate is removed the two molars bordering upon the emptied alveolus approach each other far more rapidly and effectively. We must rely upon cicatricial contraction in wounds of bones in the same manner, though different degree, as in other tissues.

It may be of interest to state that in trephining the facial bones we invariably excise the skin flap over the area of bone to be so removed and generally make the skin wound greater than the trephine opening in the bone, while in removing the alveolar plate from the trephine hole to the mouth we operate subcutaneously or subperiosteally. The flap over trephine opening is constantly in our way, becomes sensitive, causes the patient to resist dressing, and shuts out light and air, so valuable in a wound which we do not expect to keep aseptic. The injuries to the tissues in bending the flap in dressing facilitates infection, which is further favored by the increased wound area in the flap method which adds the area of the flap to the superficial wound. No blemish remains after the excision of a circular flap of 1 ½ to 2 inches.

MILK FOOD AND ITS HYGIENIC MARKETING.

By E. B. Ackerman, D. V. S., Brooklyn, N. Y.

Read before the February Meeting of the New York County Veterinary Medical Association.

Dairy husbandry has been an industry of the people of all countries and of all times, and its production of milk as an article of human food may well be given the place of most importance. Physiologically it contains all the proximate principles to support life readily assimilated by the human organism.

The child begins its career upon milk, and much of its future depends upon the quality, both from a chemico-physiological and patho-bacteriological point of view. Aside from the child, it is largely consumed by the well and strong, not to forget the invalid, where it is second in importance to child feeding.

It has been said that the milk supply of this country for a year amounts to 5,210,000,000 gallons, while in Greater New York City the daily supply amounts to 750,000 quarts. Our large cities spend millions of dollars annually upon its water supply. This, of course, is a necessary expense, but equal in importance is the milk supply from the standpoint of public health, and upon this they begrudgingly spend a few meagre thousands.

Milk, of course, both from its origin and its composition is an animal food, and it has long been recognized even by savages that a preparatory treatment (which we call cooking) is necessary before animal foods are ready for use. This fact was probably forced upon the savages by unpleasant consequences of eatiug this food raw. This preparatory treatment is necessary to destroy the various harmful forms of low life which frequently accompany animal foods. The germ theory of disease has shown us that many of the forms of disease most fatal to human life are due to these organisms, which are generally known as bacteria or microbes. It was not until the year 1870 that milk was generally considered capable of carrying epidemic diseases,

and since that time statistics show over one hundred epidemics of typhoid fever with 6700 cases; 41 epidemics of scarlet fever with 2400 cases, and 18 epidemics of diphtheria with 1000 cases, to say nothing of other diseases when no record or data have been kept or no mention made as to the number of tubercular cases established by milk.

The question of a pure milk supply is possibly of no less interest to the medical profession than to the veterinarian, and both should work hand in hand for the mutual benefit of the people. While it seems to me that our sister profession are sometimes lax in their duties as to the health of their patients in not being as particular about the source of milk supply, or the proper care of milk after delivery, the veterinarian on the other hand is interested chiefly because some of the diseases which render meat and milk unfit for human consumption are indigenous to his class of patients, namely, the cow, and the animal industry represents considerable of the wealth of this country, and the care and management of this wealth largely fall upon the shoulders of the veterinarian. To take the disease tuberculosis, as an example. I might say that the first prophylactic treatment begins with the veterinarian in stamping out the disease where it starts, that is, in the cow.

Now, to get back to milk and to make a valuable food still more desirable, I would say that the proper place to begin is with the animal that produces it; thus begin with the dairy cow. Under this head we would have the following subdivisions, viz.:

First. The condition of the stable as to ventilation, drainage, mode of feeding and watering.

Second. Health of cows. This would include all diseases as well as the tuberculin test for tuberculosis.

Third. The feed. This includes quantity, character, water supply, etc.

Fourth. Care of cows. *Especially* before milking.

Fifth. Care of utensils.

Sixth. Health and cleanliness of attendants.

Seventh. Care of milk. This would include the handling and shipping. Milk is an article of diet that must be kept within the reach of all at a popular price, and all improvements kept within a reasonable expenditure, the principal thing being health and cleanliness.

The diseases that may be transferred through the milk are those that the cow is subject to, and which can and do pass through the secreting organ into the milk, and those which are affected through external causes, as from the organisms on the udder and skin of the cow, or on the hands or clothes of the attendant, and from the water used to wash utensils. Milk being an excellent culture medium and having many opportunities of being contaminated in the various handlings it receives, should be removed from stable at once to a more cleanly place especially designated or built for the purpose of straining, aerating and cooling. Many of the epidemics caused by milk have occurred by contamination after the milk has left the cow and before delivering to customers.

Prof. Ravenel says that ordinary milk as it reaches the consumer is usually richer in bacteria than the sewage of our great cities, and that various samples experimented with have shown anywhere from 15,000 to 2,200,000 germs per cu. cent. These facts mentioned can be greatly modified by a little carefulness and cleanliness, and belong to that part of the dairy which comes under the head of purity of milk.

Now, even with the greatest care many germs may still be present, and to destroy these and make the milk marketable, the remedy is simple. The germs of all the above diseases are absolutely destroyed by the application of a moderate heat. This process of heating applied to milk is known as " Pasteurization " or, if carried still further, "sterilization." Therefore, the remedy is,—use only Pasteurized milk. It is not necessary for me to go into detail of the process of Pasteurization, for I believe you all understand it. It is subjecting milk, an animal food, to the preparatory treatment which other animal foods receive. But it may be asked, " If the remedy is so simple why is this process

not always carried out in the kitchen?" Failure to appreciate the great danger of uncooked milk is doubtless one reason. The trouble and annoyance connected with the process another, an unpleasant taste and an alteration of the appearance of the milk through the separation of stringy material, another.

The above disadvantages are avoided, and in addition to the absolute safety of the milk, many other advantages are obtained by the use of the Walker process of bottling and distributing milk. This process consists in distributing Pasteurized milk in glass syphons, the syphon containing above the milk a body of insoluble gas, usually air, sufficient to expel the milk. The advantages of this process may be enumerated as follows, viz.:

First.—Absolute safety. The milk is Pasteurized, therefore free from disease germs. It is contained in a sealed package absolutely secure against the introduction of germs from the air.

Second.—You can draw milk out of this syphon, but dirt, dust or air positively cannot get in.

Third.—Increased keeping qualities. The spoiling of milk is due to the micro-organisms it contains. If you destroy these the milk will keep, provided it is not infected with organisms from without. Ordinary Pasteurized milk is readily infected from without, as in transferring it from the Pasteurizing vessels to the bottles, hence it does not keep much longer than ordinary milk. Milk put up by the Walker process cannot be infected from without, hence it will keep, etc.

Fourth.—Possibility of using a part of the contents without contaminating the remainder. The instant an ordinary bottle of Pasteurized milk is opened, the effect of the Pasteurizing is gone, for the contents having been exposed to the air become infected, and the condition of the milk is the same as before Pasteurization. From a syphon of milk prepared by the Walker process you may draw as much or as little as you please without affecting the contents remaining.

Fifth.—Impossibility of skimming. A syphon of Walker

process milk cannot be skimmed or adulterated, either wilfully or accidentally.

Sir William Broadbent in his address before the Society for the Prevention of Tuberculosis says that English statistics show that nearly 60,000 deaths are every year recorded as due to tuberculosis in England and Wales, and that even this is an improvement over 50 years ago of 50 per cent. One form of disease only shows no decrease, and that is tabes mesenterica, the disease of the bowels in children traceable to tubercles conveyed by milk, and this has increased and is increasing.

The one great cause of this disease is cows which have the disease, and it sooner or later finds its way in the milk as do all other diseases.

A couple of months ago at the great Smithfield show one of the best breeders of cattle, fancy stock and dairy cows, when spoken to on the subject of tuberculosis and the dangers of milk, acknowledged the truth of it, and replied, the cure is simple. To sterilize the milk is cheap and simple and would benefit both customer and producer, for the former would not only get pure, healthy milk, but would get it cheaper, as sterilized milk would be put up in bottles, could be kept for a long time and could be dealt with in much the same fashion as ærated waters are. This is a fact and this assertion is made since the Walker process patent was allowed.

Society and our Government have recognized the fact that it is impracticable to stamp out tuberculosis in cattle by the immediate slaughter of all diseased animals, but the public will insist that it has a right to milk supply which is absolutely free from tuberculosis and other infectious and contagious diseases, that will not scatter death among the children of all classes of the community.

Now, properly conducted dairies and milk cared for by this process will reduce tubes mesenterica in children, will act well with the sick and help keep the well from getting sick.

Prof. Stohman, of Leipsic, Germany, in Muspratt's "Chemistry," Vol. 5, page 1690, says, "If it were possible to keep ster-

ilized milk permanently free from bacteria, it would be desirable to subject all milk to this process immediately after milking, and to bring no milk into commerce except in the sterilized state. Unfortunately only a process of sterilization which is carried out in the vessels from which the milk is to be used assures a guarantee of permanent freedom from bacteria. That such a process cannot be carried out on a large scale is evident. All other processes in which the milk after heating come in contact with the air afford no security that milk which has once been made germ free will remain so. Under ordinary conditions therefore the sterilization of milk of commerce is of little use, as milk so treated between the time of sterilization and use has many opportunities to become infected with the most various kinds of germs. If the cooling takes place in open coolers all sorts of germs may be carried to the milk by the air. There is the further danger of infecting the milk from improperly cleansed vessels. The milk may in the storeroom of the dealer become infected with the germs of disease. If such milk is then used with the belief that germs are absent it may have an injurious effect on the health, and indeed under certain circumstances more injurious than if it had not been sterilized. Sterilization whether by simple heating or boiling or in suitable apparatus should always be carried out at the place where milk is to be used and a short time before use, and all processes which do not afford a guarantee of permanent freedom from bacteria should be entirely excluded."

I claim that the Walker process overcomes the only two objections Prof. Stohman offers, viz.: 1st, it does not allow of contamination after Pasteurization; 2d, it is practical on a large scale—and, as he says, if that were practical it is the only way milk should be used.

With this process milk will keep good for two or three weeks, hence no waste. Pasteurizing it under pressure keeps the normal emulsion and the cream does not rise of any account. It makes an improved milk to the taste, giving it more body characteristic of cream.

I had the good fortune to be present at a public meeting of the Philadelphia Department of Health last year, in which the question was discussed as to which was the best, bottle or bulk milk in cans; the arguments were good on both sides, but the bottled milk came out victorious, having everything in its favor, and this process is as far ahead of ordinary bottled milk as bottled milk is above that in cans opened in the street every block or so.

The Abbott Dairy of Pennsylvania and the Walker-Gordon dairies of New York and Philadelphia put up sterilized or Pasteurized milk in sealed bottles, charging a higher price for it, but only sell in pints, so you can use most of it at time of opening, else if kept it is no better than ordinary milk, and for infant feeding the Walker-Gordon people put up Pasteurized milk or Pasteurized modified milk in glass tubes, each tube being a meal. Thus if you feed the baby eight times in a day you buy eight tubes. With our Walker process you have all the tubes in one, and what you don't use to-day can go for to-morrow.

Gentlemen, I could say much more about the advantages of this process for putting a hygienic and safe milk food on the market, but I will not take up any more of your time at present.

I thank you for your undivided attention and invite you to come up and sample this milk and see the perfection with which it is handled.

STOCK-FARM VETERINARY PRACTICE AS A POST-GRADUATE COURSE.

By A. N. Lushington, V. M. D., Lynchburg, Va.

Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1899.

1. *Study of Animal Life on the Farm.*—The study of animal life on the farm is both interesting and instructive. The conditions under which large numbers of one or more species of domestic animals may be kept on the farm more nearly ap-

proximating that to which they are accustomed in nature, permits of the widest latitude for the display and exhibition of those peculiar instinctive traits which form a part of their distinguishing characteristics. With apparently a keen sense for observation and selection, the members of each species or family readily seek out and crave the association of other members of the same species or family and appear perfectly satisfied only when thus associated. Wandering at large and grazing through the pastures or at the drinking pond or stream, they manifest a deep concern for each other, clearly evidencing, however, that the instinct for association is peculiar to them all. They frisk, frolic and gambol with a spirit of delight and gratification seemingly peculiar only to themselves. When for reasons of inability any member or members refuse to share in a general jollification, the very deepest concern is manifested for him. When danger, real or suspected, threatens and an asylum becomes necessary, as by magic, the signal is given and the course taken by one seems to be the choice of all and is persistently and unswervingly followed even when conditions of a most threatening and dangerous character sometimes seem impossible to be overcome.

2. *Stock Farm Conditions Simulate a Natural Condition.*—The conditions under which animals live in nature have a direct similarity to those on the stock-farm. In the former they enjoy so-called absolute and unrestricted freedom, having imposed upon them, however, the absolute responsibility for their own safety and protection, as well as for the means of sustenance. On the stock-farm, on the other hand, they are subject to these conditions only in a modified form by way of, to a certain extent, restricted freedom, which is compensated for by the means of protection and oversight, as well as a proportion of the means of sustenance regularly provided them.

3. *Opportunities which Constitute the Basis of Original Observation.*—Those whose business brings them into close and frequent contact with farm animals and are sufficiently observant find a large field of opportunities which constitutes the

basis for original observation. They cannot fail to observe the evolutionary modifications brought about by any change of environment, the climatic and geographical variations, change of pasturage, and water, also the imposing characteristic traits of heredity, atavism, temperament, etc. The sum total of these opportunities and observations also constitute the school from which the intelligent stock-owner and breeder learns his first and probably best lessons and from which he soon learns to distinguish the differences between or departure from a normal healthy condition to that state which is characterized as sickness or disease. The peculiar nature of the sickness or disease may and generally does outrange his limit of comprehension, but the manifest symptoms which distinguish the unhealthy from the healthy condition are always more or less apparent to him.

4. *Non-professional Stock-farm Veterinary Practice.*—To the conditions just referred to above are also traceable the great inducements which a large number of stock-owners and breeders seemingly appreciate as falling within their sphere of duty to enter the arena of pathology, therapeutics, etc., under the guise of "non-professional." In a vast majority of cases the results of such ventures are perhaps only too well known and the bitterness of the experience not soon forgotten by the venturer.

5. *Opportunities for Observation by the Professional Student.*—All the opportunities which present themselves to the mind of the stock-farm owner and breeder are, with still greater possibilities, open to the professional student who is capable of utilizing his powers for observation in a systematic and regular manner, or in a single word, scientifically. From a previous knowledge of the several scientific theories relating to those conditions for which the stock-farm offers the very best field for practical observation, he soon realizes that the seemingly tedious and unpopular, and to some extent useless and burdensome theoretical ideas of the class and lecture room reduce themselves to practical applicability with a charming exactness. He appreciates how nature, with subtle plasticity gradually and with a

definite purpose, moulds and develops into the most graceful adult forms the seemingly ill-shaped and ill-proportioned young. The watchful care and concern of the natural parent for the young, and her evident pleasure in its being can nowhere be so fully appreciated as on the stock-farm. When the conditions calling for the practical application of the principles of medicine and surgery arise, the wide range of difference between the environments of the stable in city or town, and the barn of the farm at once suggests such modifications as would reduce those principles to their very simplest forms. In the absence of the more complete assortment of the city drug store, the simpler and more ordinary articles of domestic use have very often to be called into requisition and with the most charming results. In the absence of the elaborate and scrupulously kept operation table of the city infirmary, a carefully sprinkled cement floor, or continuous antiseptic spray, the carefully regulated light, etc., the stock-farm offers the shade of an overspreading tree, under which bundles of straw may be spread and sprinkled, or even an open lawn covered with sufficient turf, with abundant light from the firmament above, with air sufficiently purified by the sun's rays and warmth as to reduce the number of germs to a minimum. These comparisons refer with directness to the more ordinary cases calling for treatment, but when the more serious conditions, such as an epidemic of contagious and infectious animal diseases, march in or break out upon the field, being communicated either by diseased conditions existing on neighboring or adjoining farms, or introduced through the medium of new acquisitions to the farm, then the plan of warfare has to be modified and changed to meet the special conditions and recourse to isolation, quarantine, preventive inoculation, disinfection, etc., becomes imperative, the success or effectiveness from any or all of these methods being just in proportion to the thoroughness with which said methods are carried out and applied.

6. *The Stock-farm as a Natural Experiment Station.*—The stock-farm managed with intelligence and foresight sufficient to appreciate the changes and variations of conditions as they arise

and the spirit to investigate and endeavor to inquire into the causes which lead up to the changed conditions, the ultimate consideration of what would be the best remedy to apply and the particular methods under which the application may be made, such a farm unquestionably offers the most perfect features of an ideal experiment station. If by recurrence, endemic disease is proven to be permanently established in any particular section of the territory, the particular time of its recurrence, the climatic and atmospheric conditions under which it recurs, the severity with which the periodic outbreaks manifest themselves, the particular grades or species of animals which are more or less susceptible to the invasion, the physical condition which more readily succumbs to the attack, the principal channels or media which facilitate the spread and dissemination of the contagious and infectious principles, and finally, the agents and methods which are most effectual in the control and stamping out of such disease.

The opportunities for engaging in experimental work of this kind on an extended scale by the simplest and yet most effective methods can be found only on the stock-farm, where the professional student, willing and able to grasp and profit by them, finds that the lessons there offered him, constitute a valuable post-graduate course.

MY EXPERIENCE WITH BLACK-LEG VACCINE.

By M. V. Byers, V. S., Osceola, Neb.

A Paper read before the Nebraska Veterinary Medical Association, February 21, 1899.

My experience with black-leg vaccine has been somewhat imited. Perhaps some of my brother or fellow practitioners have had more experience in this line than myself. During the months of January and February, 1898, I vaccinated nearly 600 head, ranging in age from six months to two and one-half years of age. During the early part of January, 1898, I was called out to examine some cattle which had been dying of some unknown disease. Upon arriving I found several dead animals,

and upon post-mortem examination I found the characteristic symptoms of black-leg, which are too well known to the profession to give here. In order to be doubly sure of my diagnosis I procured some of the diseased tissue and sent it to Dr. Jones, of Rising City, for microscopic examination and received an answer confirming my diagnosis. This herd consisted of about 150 head. I advised vaccination. The owner had never heard of such a thing, so it was impossible to convince him. He said that if it was nothing worse than black-leg he could cure them; so I said, "Go ahead." I do not know what his treatment consisted of, but I do know he lost about 22 head of nice steers. They kept on dying all winter.

The next herd was about two miles from the first, and I will say the owner was a more sensible man to deal with. He had lost several head. We vaccinated 97 head with first lymph. I will say right here that I have used the double vaccine altogether and think it best. Three died between first and second vaccination; six or eight weeks after the second, two died; none from that time up to this.

Second herd of heifers of 57, two died before vaccination; none during intervals; and none after that. Next herd of 354 head, 12 died prior to vaccination; none during interval; one after complete vaccination. I also vaccinated several smaller herds with no deaths after vaccination. I have always used the Pasteur vaccine, but there may be others just as good.

It will be seen from the above that there were only 3 deaths after complete vaccination out of nearly 600 head, and the disease actually existed in all of those herds prior to vaccination.

Some would ask how many can be vaccinated in a day. I will say that that depends upon the surroundings and the help you have. I vaccinated 354 in less than ten hours, and others can do equally as well if they have the proper assistance.

There are three modes of vaccination: The ear, shoulder and tail. I prefer the latter for several reasons.

I will further state that it is generally believed cattle will not contract the disease after three years of age. I will relate

an instance which occurred in one of the herds. There were about 90 head of cows; very wild, western cows. In separating the young stuff to be driven into another corral to be vaccinated, these cows stampeded and broke through a six-wire fence, and right by this fence lay a carcass of one of the diseased animals. Those cows were all more or less scratched by the wire. They were sold about two days later, and in about two weeks six of them died, as I am told, with all the characteristic symptoms of black-leg. This proves the theory of its being an infectious disease of wounds. I might further be asked if it is safe to vaccinate pregnant heifers. I will say I think it is, as I vaccinated over 60 and not a single abortion followed, to my knowledge.

I will close by saying that I heartily endorse black-leg vaccine where the disease actually exists.

PARALDEHYDE IN VETERINARY PRACTICE.

By Robt. S. MacKellar, V. S., New York City.

A Paper read before the New York County Veterinary Medical Association, April 5, 1899.

In treating of this drug I wish simply to state a few cases in which we have found it useful and employed it in preference to chloral hydrate, chloroform, ether and other drugs.

First, let us consider what paraldehyde is. It is a body between an alcohol and an ether; a colorless fluid, soluble in ten parts of water, still more soluble in glycerine, and of a disagreeable persistent odor. It is antiseptic and hypnotic and slightly diuretic, according to authorities.

Although it is claimed that its principal action is that of a hypnotic, we find that it is very hard to produce sleep by its use, but it acts principally on the sensory nerves and also slightly on the motor. It is this anæsthetic action that we have made use of, and of which I cite a few cases.

The drug was first recommended to us about two years ago by a fellow practitioner who had used it in the standing operation for castration. By the administration of one ounce of the drug in a gelatine capsule this painful operation was rendered painless or very nearly so.

The first case that we concluded to try with it was one where it was necessary to trephine the sinuses of the head—in a bay gelding, in good condition. Two and one-half ounces of paraldehyde were given in gelatine capsules, and after waiting about fifteen minutes, the operation was performed in the usual manner, two openings being made. The animal did not show the slightest symptoms of pain during the operation, and the only after effects noticeable were a slight dullness and staggering gait when moved, but this all passed off in the course of an hour or so. The second case in which we found it useful was a bad one of fistulous withers in a bay gelding, eight years old, weighing about 1200 pounds. We decided to operate and open up all the sinuses to their bottoms. About three ounces of the drug were administered in the same manner as in the previous case, and the operation proceeded with after waiting fifteen or twenty minutes for the drug to become diffused. At the end of this time the persistent odor of the drug could plainly be detected at each expiration. In this case it was necessary to make an incision about fourteen inches in length and also to scrape the heads of two dorsal vertebræ. The pain of the operation was greatly diminished by the use of the drug, but not entirely removed, as in the previous instance, so that in the next case it was decided to use a larger quantity.

The third case was similar to the preceding one, a gelding, ten years old, and weighing 1400 pounds. In this case we employed about 4½ ounces of the drug. After waiting the usual time the fistulous tract was opened to the bottom and in this case entirely free from pain during the operation.

We have used the drug in several other cases with equally good results, and also have recommended it to one or two other practitioners, who report favorably of its action. We would recommend it favorably in preference to cocaine where it becomes necessary to operate on quite a large surface and the operation lasting some time. The preparation used in the cases cited is prepared by Merck. We hope to hear in the near future of some one else who has given the drug a trial.

CASTRATION OF CRYPTORCHIDS (RIDGLINGS).

By J. F. Butterfield, V. S., South Montrose, Pa.

Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March 8, 1899.

The cryptorchid is a malformation in which the testicle, one or both, does not descend into the scrotum. It will be found inside the abdomen, detained in the inguinal canal, or descended to the flank or some obscure situation. The percentage of animals with this irregularity is quite small; probably not more than one-tenth of one per cent. In my experience, I have found it most prevalent in the horse, next in the pig, and quite rare in bovines, having seen but two, and they were flankers. It is quite important that ridgling horses be castrated, because they are more liable to become vicious than regular entire horses.

It is not well to breed from them owing to the hereditary tendency. In Susquehanna County a horse of that character has been used for stock purposes for some years. Quite a percentage of his colts were cryptorchids.

It is only in comparatively recent years that ridgling castrating has been attempted with any degree of success. It is an operation which requires an intimate anatomical knowledge of the parts, both theoretical and practical, especially practical. The operator should know the parts he comes in contact with from the sense of touch, which only comes from practice. He should be able to follow the natural course of the descent of the testicle in making the abdominal openings in the horse to detect the peritoneum when he comes in contact with it, to distinguish the testicle from a loop of the intestine, to separate the vas deferens from the ureters, and not make the sad mistake of removing a kidney for a testicle. He should be a natural mechanic. He should have a cool head and a steady nerve, and be able to invent the best possible plan with the means at hand to overcome the difficulties he may meet, for he will not find it all clear sailing.

I have never used anæsthetics in this operation, but would

recommend an anodyne. A hypodermic injection of morphia, three to five grains, one-half hour before operating. No doubt the anæsthetic would be the more up-to-date idea, but it is difficult to always have an assistant that is skilled in its administration, and then we would have the added danger of anæsthesia.

Prepare the animal for the operation by dieting from twelve to twenty-four hours previous, allowing only bran mashes.

To secure the horse in the recumbent position for the removal of the apparently absent member, we use the Conkey harness, preferring a grass plot on a little incline. Lay him with head down the hill, with side uppermost you wish to operate. This causes the abdominal viscera to gravitate forward out of the way, lessening the pressure upon your opening.

Having previously examined the parts in a standing position, now look for the cicatrix if the history of the case says the testicle has been removed; manipulate again for flanker, or inguinal detention, which can most usually be detected now. If a flanker, remove where you find it. If in inguinal canal, make an incision in same place in scrotum as though it were a normal castration, having previously disinfected the skin and hands with the usual bichloride or lysol solutions, and instruments with carbolic or formaldehyde solution. Make the incision large enough to introduce the hand. An operator with a small hand has an advantage. Now tear and stretch the fascia outward from the incision, and with a rotary motion with the hand partially closed, outside the muscles, next to the skin in the direction of the descent of the testicle to the inguinal ring, where you will find the testicle detained in the ring. Bring it to the surface and remove with the ecraseur in the usual manner.

Now, for the abdominal ridgling, you make the same incision and same entrance to the ring as in the detained ring operation. You now pass above the ring two or three inches and break the peritoneum with one finger. Introduce two fingers and usually you will detect the vas deferens right where you break through. Follow out to the testicle and bring it to the surface. Invari-

ably the testicle is small and flabby. Remove with the ecraseur. Should you not be able to locate the vas deferens as described, then enlarge opening into abdomen sufficient to introduce the hand. Pass above the bladder to vesiculæ seminales, follow vas deferens to testicle and bring outside. Until you become accustomed to this operation you will find it a help to introduce one hand into the rectum. It will aid in guiding you to the parts you wish to find. Should it be a double ridgling, do not open both sides, but pass your hand across from first opening and locate by vas deferens as before and bring to the surface, or nearly so, as cord may be a little short. You can bring it up sufficient to pass the chain over it.

Some may ask will not the testicle descend when detained in the inguinal ring. In some cases it does. It is a question, however, whether it will pay the owner the necessary expense and time to wait.

In this operation upon the pig, which we are frequently called upon to perform, I suspend him by the hind legs; open the abdominal cavity about one inch to the right of the penis, making the incision two or three inches long. This will bring into view the bladder and vas deferens, which you trace to the testicle. Remove in the usual manner, and close the opening with three or four stitches, using a full curved needle, engaging skin, muscle and peritoneum in each stitch.

After treatment: Do not let the horse lie down and roll for eighteen hours after the operation. Feed hay sparingly for two days. Should there be much swelling foment with clean warm water, in which use some germicide. Give walking exercise every day after the first day. Should a high temperature present itself, treat with the usual fever remedies. In the pig remove the stitches in ten days.

URINARY ANALYSIS.

By George Jobson, V. S., Chicago, Ill.

Read before the Annual Meeting of the Pennsylvania State Veterinary Medical Association, March 8, 1899.

My apology for not presenting a more lengthy paper to the members of this association is a lack of time to prepare one. I will, however, contribute my mite by giving some reliable qualitative tests for some of the most important pathological urinary constituents, as I think urinary analysis should play as important a part in the diagnosis of animal diseases as it does in the human family, and it would no doubt help to clear up the pathology of those diseases which at present are rather obscure to us, if it was more generally adopted by the members of the veterinary profession.

Urea.—*Test No 1.*—Take one ounce of urine and concentrate by boiling to a small bulk, add strong nitric acid and set aside to cool. Crystals of urea nitrate will form and can be seen by the aid of the microscope. They are octahedra lozenge-shaped tablets or hexagons.

Test No. 2 may be used quantitatively and qualitatively. It depends on the power of a solution of sodium hypobromite to evolve nitrogen from urea, and the gas collects in the closed end of the Doremus ureameter and displaces the solution. The tube being marked in per cent., the amount of nitrogen gas registered represents the percentage of urea present in the urine. Normally horses' urine contains from 1 ½ to 2 ½ per cent. But this may vary slightly according to the concentration of the urine. In dogs it may be 10 per cent.

To make the solution of sod. hypobrom., keep on hand a 20 per cent. sol. of sod. hydrate. Fill the ureameter with this solution and add 15 drops (1 c.c.) of bromide.

The test is made by drawing up 1 c.c. of urine into the pipette, which is marked. Insert the pipette carefully and press out the urine slowly. The following reaction occurs:

$$\underset{\text{urea)}}{\text{con}_2\,\text{h}_4} + \underset{\substack{\text{(sodium}\\\text{hypobrom)}}}{3\,\text{Na Bro}} = \underset{\substack{\text{(carbonic}\\\text{acid)}}}{\text{Co}_2} + \underset{\text{(nitrogen)}}{\text{N}_2} + \underset{\text{(water)}}{2\,\text{H}_2\,\text{O}} + \underset{\text{(sod. bromide)}}{3\,\text{Na Br.}}$$

ALBUMIN.—*Test No. 10.*—Acidulate a quantity of urine with a few drops of acetic acid, then add a saturated solution of potassium ferrocyanide. This gives a precipitate when much albumin is present, and produces an opalescence when there is only a trace. This test will show as little albumin as 1 part in 60,000.

Test No. 20.—Pour a small quantity of fuming nitric acid into a test tube and add a little warm urine in such a manner that the urine floats on top. If albumin is present a white zone is formed at the line of demarcation. If the urine is not warmed before making the test, urates may give a similar reaction.

A great many substances besides albumin will react to any test which is used for this substance, as salol or also resins, in the urine. But on addition of an excess of pot. ferrocyanide these precipitates are redissolved. Before testing for albumin urine must be made perfectly clear by filtering, otherwise you will not be able to detect traces.

SUGAR.—*Test No. 11.*—Test Fehling's solution, which is a mixture of copper sulphate, caustic soda and Rochelle salts, by boiling. If it remains clear it is in good condition. Take equal parts of urine and Fehling's solution and raise to the boiling point. A yellowish or reddish precipitate stands for sugar.

Test No 20.—This is probably the most reliable test known for sugar. To 2 drams of urine add the point of a knife full of phenyl hydrazin chloride, and the same amount of sodium acetate crystals; shake thoroughly until dissolved. Then place in a hot-water bath just below boiling point for 30 minutes. Remove test tube and cool the solution under running cold water and examine some of the yellow precipitate with a microscope. If sugar be present yellow needle-like crystals are seen. Before testing for sugar if albumin is present, remove by acidulating with acetic acid, boil and filter.

BLOOD.—To a little tr. guiac. add an excess of peroxide of hydrogen. To this add the suspected urine. A blue color stands for blood.

PUS.—Acidulate a small portion of urine with acetic acid.

Filter through a double filter. Then treat the moist residue on the filter paper with a few drops of tr. guiac., which gives a blue tinge.

PHOSPHATES.—Phosphates are usually found in urine as an amorphous white substance which clears up on addition of acetic acid. Very often neutral or alkaline urine will become cloudy when boiled; this may be due to albumin or phosphates. They may be distinguished by the acetic acid test, which dissolves phosphates but not albumin.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

RUPTURE OF THE INTERNAL ILIAC ARTERY.

By W. J. MARTIN, V. S., Kankakee, Ill.

The patient, a bay mare, aged six years, of the Norman variety, was found at 3 A. M. on March 30, to be in labor. On a casual examination by the owner, he found one fore foot presented, with the other one flexed and turned backward in the vagina. This he readily straightened and brought out with its fellow, but was unable to find any trace of the head. He now desisted from further efforts to deliver the mare and my services were requested by telegraph. Upon my arrival at 11 A. M. I found from the owner's statement that after his manipulation the mare began to strain in a most violent manner, and in a short time she succeeded in forcing out nearly two feet of her rectum. I found the rectum hanging down, cold and of a dark-red color. The mare was lying full length on her side and at intervals straining violently. Upon being assisted by several men she was enabled to rise, where she stood and trembled, with a quick, weak pulse and a very anxious countenance, betokening serious abdominal pain.

I informed the owner that in my opinion the case was hopeless, and that the mare would not live through the ordeal of delivering the colt; but he insisted that I should go ahead and get the colt away.

After administering a stimulant, and returning the prolapsed rectum to its proper position, I attempted to make an examination of the position of the colt, but the mare became so restless

and strained so violently, that it was deemed best to lay her down and administer a small amount of chloroform to quiet her. After this was done, one of the foal's limbs was removed at the shoulder joint, which gave room for the introduction of the hand, when the back of the foal's head could be felt in the left side of the womb. The foal's head was turned backward and the nose rested against its right side. After several arduous attempts, a cord was finally placed around the neck, and the head being then rotated it was drawn up into the passage and delivery was quickly accomplished.

During the interval of securing the foal's head the mare acted quite strong, in spite of the benumbing influence of the chloroform, and at times would strain quite strongly. At no time during the period of removing the foal was there complete chloroform anæsthesia. After removal of the foal and the secundines, the mare had an attack of syncope, from which she was rallied with difficulty. At this time every person who was present thought the syncope to be due to chloroform narcosis and I was somewhat inclined to the same view, although I was unable to account how so small an amount of the drug (nine drachms) could produce such a serious systemic effect. The mare would rally from one fainting spell only to relapse in a few minutes into another one, and in one of these, about 30 minutes after delivery, she quietly died.

Having used chloroform in general practice for sixteen years without any fatal or untoward results, I was much chagrined at the general opinion of the owner and the other persons present that the mare's death was due to chloroform. I, therefore, in justice to myself, asked the owner's permission to hold a post-mortem examination, a request he readily granted.

On opening the abdominal cavity a large amount of clotted arterial blood was seen resting upon and among the superior portion of the intestines and womb, while the lower abdominal cavity was filled with a large amount of blood-colored watery fluid. On searching for the origin of this hæmorrhage, it was found in the internal iliac artery, which was ruptured just below the junction where it leaves the posterior aorta. The rupture was due no doubt to the violent throes of straining in which the animal indulged after the owner had made his first manual examination. The owner was now perfectly satisfied as to the cause of the mare's death when he placed his finger into the ruptured artery.

Thus by the post-mortem was removed the odium cast upon

a drug that has done more to alleviate the pain and sufferings of mankind and animals than any other drug ever discovered by man.

TETANUS IN A MULE—RECOVERY.

By NEWTON G. LE GEAR, V. S., Waco, Texas.

On March 8, 1899, Dr. C. C. Brown, M.D.C., was called to the Cooper Grocery Co. to see a sick mule. Upon reaching the place he found the mule to be suffering from tetanus, with symptoms well marked, and gave a prognosis as unfavorable. After consulting with me upon the case, the carbolic acid treatment was decided upon, more in the way of an experiment than anything else. Gave intratracheally with a hypodermic syringe three times daily the following:

Carbolic acid crystals,	grs. iij
Glycerine pure,	♏ x.
Aquæ,	♏ xv.

This treatment was discontinued at the end of six days, on account of considerable irritation to his neck at the point of inserting the needle, and campho-phenique substituted. Campho-phenique, xmi, was given hypodermically three times daily for four days longer, at the end of which time the mule was pronounced well and fit for duty—making in all ten days from the time treatment was begun.

The use of campho-phenique gave very gratifying results, and as it is non-irritating can be safely used hypodermically. Eserine was used to keep the bowels open.

EXTRA-UTERINE PREGNANCY.

By HERBERT S. PERLEY, D. V. S., Ottawa, Ont.

On April 23d I was asked to examine a mare, twenty-two years old, and give an opinion as to whether she was with foal. Owner stated that she should have had her colt the last of March. The mare presented every appearance of being pregnant and I told owner that she would likely foal in a few days. I saw or heard nothing more of the case till July, when I saw the owner and he informed me that the mare had not had a colt and that although still appearing as if in foal he had decided she was not and was using her at light work.

About the end of September a man drove the mare to my office and asked my opinion as to her condition. Being busy I asked him to bring her again and I would examine her. On October 17th he returned and informed me that the day before

the mare had begun to strain and in about an hour the placenta came away. I made an examination per vagina and found os dilated and made an examination of uterus, which was pretty well contracted. On the floor of uterus and a little to the right I could detect what was evidently the cicatrix of a rupture. I now expressed the opinion that the mare was either suffering from a tumor or else the fœtus had dropped down into the abdominal cavity. The abdomen was greatly distended, but nothing could be felt from vagina or rectum. Advised destruction of animal as on account of her age she was of no use. This the owner would not agree to, but promised to let me know how the case ended.

On November 6th he came for me, stating that the mare was straining very hard and that he wished her destroyed. On reaching his farm I found the mare in violent pain and at first refused to move. Examination of uterus revealed it contracting forcibly. I shot her and held a post-mortem. Upon cutting the skin along the median line of the abdomen the first thing noticed was a thick growth of hair protruding through the linea alba and abdominal floor. This proved to be the hair of the fœtus, which lay in the left hypogastric and hypochondriac regions. The head was imbedded in the stomach and one eye obliterated. The hair of the head had penetrated the stomach of the mare, as the hair of the back had the abdominal floor. There was a membrane encasing the fœtus, to which was attached the umbilical vessels.

The spine was bent on itself and where the shoulder and hip came together on the concave side there was union of the two. Where the limbs came together, that is, where one touched the other, there was also union. The fœtus was very large, being apparently as large as it would have been had it been born at the proper time instead of remaining in the dam for seven months and some few days longer than was normal.

All the abdominal organs were crowded out of place and the small intestines were literally wound round and round the limbs of the fœtus.

The mare had kept in good condition and done light work, exhibiting no signs of pain or inconvenience until the day before she was destroyed, when the placenta came away. The cicatrix on the uterus proved to be from a longitudinal rupture five and a half inches long from which I decided that the fœtus must have dropped down while quite small.

IMMOBILITY IN THE TREATMENT OF OPEN JOINTS.

By W. F. DERR, V. S., Wooster, Ohio.

Subject, a valuable sorrel colt, three years old, that had been turned out that morning into a field. Frightened by a dog it got tangled up in a barbed-wire fence, and in trying to get over it fell down, the wire fastening in such a way as to lay open the shoulder and elbow joints, making a wound extending from the posterior part of the elbow up over the shoulder of about 14 inches, severing some of the flexors at the elbow, the wire actually sawing into the bony structures of the elbow.

At the time of my seeing the animal there was complete loss of the use of the leg and forearm, and by moving the arm you could see into the humero-radial articulation. Now, here is what I would call a very bad case of laceration of skin and muscular tissues, as well as two important joints laid open, the wound at the elbow looking very formidable. After making a careful examination of the case, I thought it best to destroy the animal, considering the injury done, the time and expense involved in the treatment of it. I explained the nature of the case to the owner, that it was almost impossible to hold the parts together, the nature of an open joint, and the locality they were in. After giving the matter careful consideration, he concluded to at least give the case a trial. I then proceeded as follows: I took an ordinary spray pump, such as is used to spray gardens, which I cleansed thoroughly (not having anything with me that I thought large enough for the occasion), and sprayed the wound with iodine and carbolic solution, after first removing some of the lacerated tissues, the spray over the parts merely being a mist. This spraying was kept up while there was a brace being made as in the case related in the March REVIEW, only it was carried over the withers. After having everything ready, put the animal in slings, closed the wound with quill sutures, using small sticks of rattan; dusted the wound well with boracic acid and iodoform, then bandages, beginning in the middle of the metacarpal up to the elbow, with absorbent cotton over the wounds. The bandages were carried around the thorax and neck, and I assure you that it took quite a few yards of bandages to do all this.

After I had the parts well secured with bandages, I applied the brace and fastened it with some bandages to the limb. The animal remained very quiet, but I still thought it best to have a man stay with it continually, at least the first twenty-four hours, which was done. Next day the general appearance of the

animal was good; temperature and pulse had increased some, for which it received some febrifuges, diuretics and laxatives; the bandages had loosened around the parts, but not enough to again remove them. I left the wound alone for two days, at which time there was a discharge of serum, so I thought best to dress the wound. I prepared myself with new bandages, the same solution and the various dressings needed, then took off all the bandages.

The wound was looking as well as could be expected, with considerable serum and coagulated synovia surrounding it. At the elbow there were some of the tissues sloughing, which was removed with scissors. I then applied the spray for fully ten minutes, the wound having gaped open some. I again dusted it thoroughly with boracic acid and iodoform and closed as before. I again left it closed for two days, at which time I dressed as before, using plenty of absorbent cotton. At the end of twelve days some of the sutures commenced to give away, the wounds having completely filled up with granulations. At the end of fourteen days the colt was removed from the slings, having become very tired at this time.

At the end of twenty days the wounds were filled with granulations, so as to need some astringents.

I saw the case again in a month, when the wound was all healed, leaving but small cicatrices, and seemingly as sound as ever.

In this case I think the recovery was altogether due to the immobility of the limb.

PICRIC ACID IN THE TREATMENT OF CANKER.

By FRANCIS ABBE, V. S., Quincy, Mass.

Was called to a valuable (?) stallion, Hajah, for lameness about two years ago. His owner purchased him lame three years ago this May from a dealer, with the story that the horse came from Kentucky a year before with a sore in his foot where a stub had penetrated. The dealer expected to cure it, and had tried everything; bichloride worked the best. I diagnosed a bad case of canker. Gave no encouragement, as books say almost useless to treat when wall is affected, the whole sole wall and bars being undermined. At first I used bichloride. It would progress well until a horn had grown and then come to explore it was all undermined. To say it was discouraging, did not half express it. I then tried the preparation recommended by Finlay Dun, of cupric sulph., ferri sulph., zinc

sulph., ac. carbol. and petroleum. That worked better, but when it seemed the foot was almost ready for a shoe the canker broke out at the coronet; the whole wall almost was separated. In the REVIEW, under "Italian Review," I saw picric acid recommended to stimulate growth of skin. An idea struck me, for I was familiar with the acid, and I added this to the Dun mixture. The hoof at once made a steady recovery. The acid hardened the hoof, killed the vegetable (?) growth or pus and now the horse has a whole foot and a shoe on it after a year and a half's treatment by me, and the Lord only knows how much longer by other people. You will see by the books that there are almost as many remedies for that as for consumption and that they say that what will work in one case will not work in another. I tried most all of them. Now, here is another to add to that long list.

REMOVAL OF A CAULKBOIL BY LIGATURE.

By J. A. McCRANK, Plattsburgh, N. Y.

A gentleman's driving mare developed a large caulkboil, which became an annoyance to her owner. He used many receipts for its removal, but to no purpose. He asked me to remove it by some means. I tried the elastic ligature as mentioned by Dr. J. C. Meyer, Vol. XVIII, page 501, of the REVIEW, and on the tenth day a tumor weighing four and one-half pounds was removed and a smooth surface remained, which healed beautifully in due time. Now, this case may not be of any interest to many of the readers of the REVIEW, but there are a few young brothers of mine who will be glad to know how I overcame my difficulty. I may say the operation is simple and was entirely satisfactory to me.

TWO CASES OF AMPUTATION OF THE UTERUS.

By D. D. KEELER, V. S., Salem, Oregon.

I was called on January 9, 1899, to Lincoln, six miles down the river, to see a cow suffering from prolapsus of the uterus; the cow was medium sized, half Jersey and half Roan Durham; had dropped her calf three days previous, at which time the prolapsus occurred. A neighbor having some experience with cows was called in the first day and returned the womb, but on the following morning she was found with uterus again protruding. I reached there the following afternoon and found her in very bad shape; womb lacerated, badly swollen and blackened. I could not return it, and decided on ligating it.

After putting the cord around at the breach of the womb, drawing and tying it very tightly, I excised the parts sufficiently back of the string to leave it holding well. Left some fever mixtures to be given three times a day and went home. She has completely recovered and is now giving two and one-fourth to two and one-half gallons milk at a milking.

Was called to see a Cotswold ewe on the second day after prolapsus of the uterus had occurred. Found the womb lacerated and badly swollen, having gotten among rosebriars. I could not return it, so decided to ligate it and take it off.

I passed the cord around about half the way along the vaginal canal from the breach of the womb, cording and tying it very tightly, cutting it off, giving cord plenty of hold. Left some fever mixtures to be given. Two days after my patient died. It had fine grazing. The cow had but little grass, but was well cared for otherwise in having plenty of dry food.

Now, will some one of the many readers of the valuable REVIEW tell me why I did not succeed in the second operation?

PUNCTURED WOUNDS OF THE FEET.

By FRANCIS ABELE, V. S., Quincy, Mass.

Some little time ago I signed a petition to have all blacksmiths in this State pass an examination before they could practice here.

When they get round to it I want them to start on a local shoer here first, before he does any more damage.

Case No. One.—Horse lame; had a rag around his ankle; would bear no weight, though only a few hours before had been on a long trip. Located lameness at outside quarter of foot. Drew each nail separately; found a number of nails, wet with pus, driven into sensitive wall because hormy wall was broken away.

Drained it and fomented. Recovery was rapid.

Case No. Two.—Horse lame; lower portion of leg swelled and hot; no weight borne. Lameness on outside quarter; wall broken away. Pulled nails separately. Found a number of nails wet with pus full distance. Tried to drain whole length. Pus broke out above hoof. Blacksmith visited and threw nails outdoors; told owner I would ruin the horse's foot. Owner replied in effect as to impossibility of spoiling a rotten egg. Horse recovered, but has to wear a bar shoe on hind foot pending the growth of more hoof, where I cut.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Prof. OLOF SCHWARZKOPF, Flushing, N. Y.

A NEW TREATMENT OF PURPURA HÆMORRHAGICA.—About a year ago Prof. Dickerhoff announced a series of experiments with argentum colloidale crede, in the treatment of this disease, the results of which appeared exceedingly favorable. This remedy, manufactured by Heyden, in Radebeul by Dresden, has since been tried in practice, and veterinarian P. Meisseur reports three interesting cases of recovery by its use. The first case relates to a horse which had fairly recovered from influenza, when on November 16 he was found suffering with purpura hæmorrhagica. Meissuer first applied intratracheal injection of Lugol's solution (iodide of potass.) with bathing of the swollen parts with Brown's mixture, but the horse became worse, and on November 20 showed a pitiable appearance from great emaciation and gangrene of the skin. M. telegraphed for the new remedy and on the next day gave an intravenous injection of 0.5 gramm of argentum crede and 50 gramms distilled water, repeating within two hours. On November 22 he found the horse greatly improved, especially the swellings having diminished, and he applied a third injection. On the next day, two days after first injection, M. found the horse on the way to recovery, the swellings of the legs having almost entirely disappeared, the swelling of the head remaining latest. The hæmorrhagic nasal discharge was changed to a clear mucous discharge, and the petechiæ had entirely disappeared. He then turned his attention towards the treatment of the complications and on December 5 the horse was put to light use. The second case is that of a heavy Belgian horse which was suffering from croupous pneumonia, and on December 3 developed purpura hæmorrhagica. The sheath was so enormously swollen that it almost touched the ground. M. applied two injections of argentum crede on that day, one injection on December 4, and on December 5 he found the horse quite free from the more pronounced symptoms of purpura, and was hereafter mainly treated for a severe cough and copious nasal discharge, and on December 11 was considered cured. The third case was a Shire filly, which had been suffering from strangles, and on February 7 showed first symptoms of purpura

hæmorrhagica. Two intravenous injections of argentum crede were given on that day and had to be continued with one injection daily up to February 11, the next day the filly appearing as cured. Another case is reported by Veterinarian Schonhafer, which also resulted in a quick and complete recovery.

A NOVEL METHOD OF THROWING HORSES.—Prof. Beyer reports trying a throwing method by Count Hurnbrandt, a German horse-breeder. A strong surcingle is fastened around the chest and protected from slipping forward by a crupper and a leather strap thrown over the haunches and connected with the surcingle. A strong halter is applied to the head, and on the rings on either side are fastened ropes which are then pulled through side rings of the surcingle. The rope is extended forward, and one man, standing two or three yards in front of the horse, gradually pulls the ropes, which bring the horse's head slowly towards the sternum. The horse will throw his weight more and more on the hind-quarters, swaying backwards and forwards and finally lies down slowly and remains lying as if hypnotized. According to which side the head is more strongly pulled, the horse will lie down either on the left or right side. This method seems to be especially adapted in cases of vicious horses which object to the fastening of hobbles.

EXPERIMENTS WITH VASAGEN PREPARATIONS.—The drug firm of E. T. Pearson, Hamburg, has brought into the market the so-called vasagens, which are apt to supplant the use of vaseline, etc., as bases for ointments. The vasagens are in the main vaselines charged with oxygen, thus rendering possible an emulsion with water; they are fluid, of remarkable penetrating and absorption powers, devoid of irritating effects, and can easily be rubbed into the skin or mucous membranes, and injected into fistulæ or even be given internally. Veterinarian C. Augustine reports experiments with three kinds of vasagen preparations, of a 15 per cent. creolin vasagen, a 1.5 per cent. iodoform vasagen, and a 6 per cent. iodine vasagen. A. used iodoform vasagen in a penetrating wound on the knee of a cow, which was of old standing and had affected the general condition of the animal in such degree that she ceased eating and giving milk. The wound did not respond well to the ordinary methods of treatment. Iodoform vasagen was applied three times daily with a brush and the wound loosely covered with a linen cloth. In nine days the wound was entirely healed, leaving no swelling nor thickening whatever. A. also used iodo-

form vasagen as an injection in three cases of fistulæ, in one of which wound-infection had already set in with high fever. The daily injections were followed by introducing a tampon saturated with iodoform vasagen, in both cases a complete recovery being effected in 14 and 20 days respectively. He also used iodoform vasagen in two cases where parts of the horny sole of horses had to be amputated, a thin layer of new, healthy horn appearing within three to five days. In several cases of vaginal injuries from parturition of cows A. used creolin vasagen. In one case gangrene had set in. The wounds rapidly changed to a healthy appearance, and the cow never showed any straining after the application of the remedy, which proved that it is non-irritant. Interesting is a case of chronic lymphangitis (three years old) of a horse, the extremity being swollen from the coronary band up to two hands above the hock. All previous treatment had resulted only in temporary relief without cure. A. applied three times daily iodine vasagen. In two days appeared several soft patches near the fetlock joint. These were opened and a large quantity of a serous fluid of a reddish color emptied. In the course of a continued application with this remedy during four weeks, the skin treated in such manner was continually covered with drop-like effusions of a serous fluid, resulting in almost complete recovery after such long standing.

STATISTICS OF SCHMIDT'S TREATMENT OF MILK FEVER.—In addition to the statistical report of Dr. Nevermann on the results of the iodide of potass. treatment of milk fever, as published in the March issue of the REVIEW, V. Jensen now gives the results of treatment by 146 veterinarians, representing 1701 cases of this disease. From these statistics it appears that milk fever mostly befalls cows between the ages of 6 and 8 years, and that the disease most frequently manifests itself 10 to 20 hours after parturition. Of the 1701 cases treated, 1407 (82.5 per cent.) were cured, 209 cows were slaughtered, 43 died of traumatic pneumonia, and 58 cases developed mastitis. Of the cows that recovered two-thirds of the number stood up within 6 to 18 hours after beginning of treatment. The report states that in about one-half of the cases the treatment could only be applied rather late in the development of the disease, yet the result as a whole is most favorable. Jensen concludes, as did Nevermann, that iodide of potass. has proven itself as a specific against milk fever, and that the new treatment constitutes a boon for the country practitioner.

FRENCH REVIEW.

THE OLD VETERINARY SCHOOL OF LIMOGES.—In the December *Revue Veterinaire de Toulouse*, Mr. A. Leroux publishes an interesting article upon the establishment of this school in 1765, posterior, therefore, to that founded by Bourgelot, in Lyon, but anterior to the opening of the Alfort School. Although it was supported by the Government, it met with little success and closed its doors in 1768.

NECROSIS OF THE HYOID BONE, SEQUELÆ OF STRANGLES [*By MM. Cuillé and Sendrail*].—A young horse which had strangles had an abscess of the intermaxillary space. It was opened and a favorable prognosis given. Nevertheless, the abscess did not close and a fistulous tract remained, which proved rebellious to all treatment. On being probed, the instrument struck the hyoid. A free incision was made and two hard little bony masses, the size of a small hazel nut, were removed. The horse died two days after with gangrenous pneumonia from foreign bodies. The hyoid bone when removed was found to be the seat of extensive necrosis of the body. There were three cavities at the base of each of the small branches and the lingual appendix, two of which were empty, the third containing two small sequestriums as big as a pea, which would have sloughed of themselves had the horse survived.—(*Revue Veterin.*)

LYMPHADEMA IN COWS [*By Mr. Queyron*].—A cow, having been treated two years previously for a pulmonary affection, presented a few days since the following symptoms: swelling of the neck, venous pulse to the jugulars, cardiac arythmia, cough and tympanites. These symptoms rapidly become more marked; the dyspnœa is very severe, the swelling extends to the dewlap and then the extremities. The animal is sold to the butcher. At the post-mortem, the lymphatic glands of the thorax are largely hypertrophied; one, as big as a man's fist, presses on the œsophagus, the blood vessels and the nerves. It was that swollen gland which gave rise to the symptoms described. At first the case was supposed to be one of ganglionary tuberculosis, but closer observation of the lesions and their histological examination showed them to be lymphadema.—(*Prog. Veterin.*)

UPON THE CASTRATION OF COWS [*By Mr. Revouy*].—From a series of observations that the author records in the *Journal de Zootechnie* it results that (1) the operation ought to be performed only when in good health and in good hygienic con-

dition ; (2) that ovariotomy performed on tuberculous cows may be complicated with peritonitis, metro-peritonitis, sometimes with nymphomania, even when the cow is suffering with this disease before being operated upon ; (3) that it is indicated to resort to the tuberculin test before operation ; (4) that the symptoms of nymphomania may continue in a tuberculous cow after ovariotomy ; (5) that the castration performed on a sound cow has a positive influence on the recovery from nymphomania, upon the increase of the milk especially in nymphomanic animals, upon the length of the lactation, upon the tendency to fattening ; (6) that it probably increases the richness and quality of the milk and improves it by rendering it more pleasant to the taste and more uniform in its composition ; (7) that the milk secretion lasts for at least one year in the same amount as it was at the time of spaying. If it varies, it is due to other causes, such as change of season, or diet, etc. ; (8) that it is advantageous to perform it during the period of increase of the milk secretion or when it is at its maximum.

PARALYSIS OF THE TAIL AND OF THE SPHINCTERS IN A MARE [*By Mr. Raymond*].—With the exception of an attack of strangles, a mare has never been sick. Hired by a gentleman from a breeder for his use, she became unfit for work by the gradual development of a series of symptoms which in some six months assume the following aspect : Quite large œdema around the sphincters, which are swollen, prominent and drooping ; anus elliptical in form, prominent but flabby ; vulva reduced in height, open, exposing the mucous membrane and the clitoris to view ; tail dropping, inert and entirely unusable, it hangs between the legs ; its skin, muscles and articulations are not the seat of pain ; the anæsthesia of the skin extends to the perineum and part of the croup ; the mucous membrane of the vulva and rectum are no longer sensitive to the touch ; rectum full of excrement, its muscular coat does not react to rectal exploration ; on the croup, at a level with the summit of the sacral vertebræ, there is a circular swelling, in shape of a flattened cone, slightly œdematous, excessively painful ; on each side of it, the croup is also the seat of excessive hyperasthesia. Rectal examination reveals nothing abnormal. The animal walks naturally, but in trotting is stiff behind. Placed under treatment she improved some, but ultimately died of colic. At the post-mortem nothing abnormal was found except on the bladder. Its walls were four times their normal thickness, its mucous membrane thickened, bosselated, purplish and covered

with yellowish sticky covering. A large mass as big as two fists filled the cavity of the bladder. The cord and the tail of the horse were examined by Prof. Cadéac, who found "that the cord, on a level with the sacral pairs, presented an enlargement in the form of a tumor which must have filled the entire rachidian canal. The cord was dense, firm, hard, fibrous, looking like a fibroma developed in the medullary canal. In front of this tumor the cord was softer and more anteriorly resumed its healthy appearance. The case was for Prof. Cadéac a clinical type of sclerosis of the cauda equina.—(*Journ. de Zootech.*)

INTESTINAL OBSTRUCTION IN A MARE—TAXIS AFTER PUNCTURE OF THE VAGINA—RECOVERY [*By M. Audebert*].—This animal was taken with colic, due to intestinal obstruction, which lasted for five days and failed to be relieved by all kinds of treatment, blood-letting, injections of pilocarpine, glycerine injection, frictions of turpentine and even the injection of 4 c.c. of a solution of chloride of barium, which had previously given some excellent results to the author. Considering the animal lost, the owner gave it to the author, who thought to resort to vaginal puncture to reach the obstruction. The vulva and vagina were disinfected, and with a bistoury caché the vagina opened as for ovariotomy. With the hand introduced into the abdominal cavity, the floating colon was felt and a torsion of its circumvolutions was felt. At all hazards, the intestinal mass was pushed about, pressure was made upon the hard fæces which were collected in it, the twist of the colon became untied and the obstructive collection gradually pressed into the rectum. A second dose of barium brought an abundant evacuation. After a few days of careful diet, the animal returned to work.

ITALIAN REVIEW.

PHALANGEAL EXOSTOSIS [*By M. Bamba and Bobbia*].—According to the authors, ringbones are due to four principal morbid processes: (1) dry deformans arthritis; (2) periostitis, due to a sprain; (3) periostitis due to traumatism or wounds by extension to the periosteum of the inflammation existing on the skin or in the subcutaneous tissue of the phalanges; (4) rachitic diathesis. The prognoses of these different forms vary according to causes: the first are difficult to relieve; those due to periostitis may disappear by removal of the original cause, the last are also amenable to treatment. A preventive treatment consists in proper shoeing. The curative treatment varies with

the form of the disease. Neurotomy is indicated when the lameness prevents the horse from working—blisters and ointments of biniodide of mercury or deep-point cauterization, according to the length of standing of the exostosis. Plantar neurotomy finds its application when the lameness is mechanical. Fissures made in the length of the walls of the foot will give relief in cases of side bones.—(*Il Veter. di Compag.*)

MUSCULAR RHEUMATISM [*By Umberto de Mia*].—The author relates cases of chronic muscular rheumatism which he has treated by intramuscular injections of solution of veratrine and arecoline and obtained good results in cases of two months' standing. The first two days he injected a solution of veratrine, gr. 06 in 4 grams of alcohol and distilled water. Improvement was noticed on the third day—the dose of veratrine was increased on that day to gram .10—and to 0.12 centig. on the fourth and to 0.15 centig. on the fifth. The next day recovery was complete. In other cases he had to raise the dose to 30 centigrammes. In another case he resorted to bromhydrate of arecoline, 8 centigrammes in 4 grammes of water, with perfect success.—(*Il Nuovo Ercolani.*)

RED ECZEMA OF DOG.—Eppinger says that after having tried all therapeutic methods without success, he has given them up and now gives no treatment, but submits his patients to a meat diet entirely. In two or three weeks they all get well. Prof. Marcone, of the Veterinary School of Naples, treats with simple hygienic care of the skin; tepid baths of starched water, alkaline soap or again by rubbing with a coarse brush to stimulate the action of the skin, and in cases of chronic manifestations promotes a slight hyperhæmia. The dogs receive a milk diet entirely. Milk taken in place of meat is sometimes found very advantageous.—(*La Riforma Veter.*)

SUBCUTANEOUS INJECTIONS OF ATROPINE AND MORPHIA IN RHEUMATOID LAMENESS OF THE SHOULDER [*By Prof. A. Baldoni*].—After a long and carefully made record of the experiments made in the treatment of shoulder lameness by rheumatism and of the local effects produced by the injections, the author records a few cases where he has been successful in relieving lameness existing for various lengths of time. His conclusions are that while there are sometimes some local effects which may occur, those are not of serious nature and not deserving the severe criticism that this form of treatment has received at the hands of some German practitioners. While evidently benefits cannot be expected in all and every case, yet

it has proved with him most advantageous in acute and chronic rheumatism when every other form of treatment had failed.—(*Clinica Vet.*)

TREATMENT OF SALIVARY FISTULA WITH ETHYLIC ALCOHOL.—In 1849 Haubiver recommended the injection of liquor ammonia to arrest the salivary secretion, but the results were not satisfactory. Later on Pallerini advocated the use of diluted tincture of iodine. He claimed to have good results with it, but they were not confirmed by others. Prof. Bassi finally instead of those resorted to ethylic alcohol, and all his cases were successful. In a recent case a colt was first treated by creoline without result. An injection of 15 grammes of ethylic alcohol which had probably not entered the duct of Steno failed also. A second injection was more satisfactory. The next day after the injection, the parotid region was swollen, warm and painful, the flow of saliva had almost entirely stopped at the fistulous opening. A few days after, the inflammatory manifestations having subsided, the wound healed and in a short time recovery was completed. In an experiment made to determine the effect of the alcohol on the glandular tissue, it was found that the gland which had been treated had lost size and weight, while it weighed but 85 grammes, the sound weighed 200.—(*La Riforma Veter.*)

COMMENCEMENT EXERCISES.

M'KILLIP VETERINARY COLLEGE.

The third annual commencement exercises of this school occurred March 13, at 8 P. M., in the college auditorium, 1639 Wabash Avenue. The invocation was made by Rev. E. C. Snyder, which was followed by a baccalaureate address by Mr. Clarence Park Johnson. J. Harry Danforth presented the class history, Lawrence W. Bowlus the prophecy, and Wm. J. Patterson the class poem. The presentation of prizes followed, being delivered by Prof. J. M. Wright.

President McKillip then conferred the diploma of the college upon the following fourteen graduates: L. Edgar Almony, Lawrence W. Bowlus, Joel E. Cloud, D. V. S., Thomas Madison Doram, J. H. Danforth, Charles H. Howard, Walter G. Huyett, V. S., Clyde S. Hess, Fred E. Jones, Robert Jay, Edward H. Lawley, V. S., Wm. J. Patterson, Charles Parke, Otto Schukat, John A. Sloan, B. Sc., George P. Statter, V. S., Grant A. Wehr, V. S., Willard E. Wight, V. S.

After a valedictory by Clyde S. Hess, of the graduating class, benediction was pronounced.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

There were no formal graduating exercises or supper given this year at the New York College of Veterinary Surgeons. The following students received diplomas; William Malcolm Mackellar, Francis C. Edmonds, Robert H. Twitty, D. V. S., George Byron Morse, M. D., Ph. G., Alphonso J. Doncourt, Wallace M. Gill, William P. Grimes and Stephen J. Hanlon.

William Malcolm Mackellar was awarded the gold medal for the best senior examination, and the pocket-case of instruments for the best practical examination. Mr. Daniel J. Mangan, a second year student, received a hypodermic syringe for the best examination in materia medica, and Mr. Charles Joseph Jones, a first year student, received the silver medal for the best junior examination.

UNITED STATES COLLEGE OF VETERINARY SURGEONS.

The commencement exercises of this college took place in the lecture hall of the college. Dr. C. Barnwell Robinson opened the exercises with an address, after which he conferred the degree of doctor of veterinary science upon the following graduates: E. P. Flower, New Orleans, La.; J. G. Ferneyhough, Blacksburgh, Va.; C. E. Uber, Glencarlyn, Va. The degree of fellowship was conferred upon Professors H. D. Hanson, D. V. S., of New York City, and Otto G. Noack, veterinarian, of Reading, Pa.

The prizes were then awarded as follows: Mr. E. Pegram Flower, of New Orleans, La., the "Hinkley prize" for general proficiency, and the Gheen prize for practice of medicine and surgery; Mr. Frank B. Berger, of Baltimore, Md., the gold medal presented by Dr. Wm. E. Yetton for proficiency in dentistry; Mr. J. G. Ferneyhough, the second prize for general proficiency, and Mr. Frank F. Feagons, of West Virginia, the Kaufmann prize, a library of books, for best junior examination.

The trustees were represented by Prof. Geo. A. Prevost, who made an interesting address. Mr. Flower, the valedictorian of the class of '99, delivered an address which was received with great applause. This was responded to by Prof. Robert S. Lamb, M. D., representing the faculty. Prof. W. A. Hedrick, Ph. D., presented the humorous side of the problems confronting the students in the career presented by veterinary science.

ONTARIO VETERINARY COLLEGE.

The closing exercises of this college were held in the college building, Temperance Street, Toronto, Canada, March 23, Principal Smith occupying the chair. The following graduates received the diploma of the college: Victor J. André, St. Genevieve, Mo., U. S.; H. W. Carley Baker, London, Eng.; John H. Black, Toronto; J. Alex. S. Berryman, St. John, N. B.; John W. Corrigan, Oswego, N. Y.; C. J. Donnelly, Orillia; Fred. B. Davidson, Glencoe; Wilfred J. R. Fowler, Seaforth; Charles T. Frerg, Warwick, Rhode Island; John J. Giblin, Blackstone, Mass.; Wesley M. Goff, Lewiston, Maine; William J. Hennessey, Worcester, Mass.; Arthur Hobbs, Carlisle, England; Duncan A. Irvine, Dalkeith; George Jerome, Rapid River, Mich.; Fred. Clee Jones, Birmingham England; Arthur E. Joslin, Adrian, Mich.; Lewis B. Judson, Bethel, Conn.; W. Luther Jones, Edgefield, South Carolina; Harvey F. Kaufman, Hegins, Pa.; Joseph King, Brice, Ohio; Thomas J. Kirwan, Auburn, N. Y.; William A. Kuhns, Boston, Mass.; Charlie A. Locke, Trilly, N. Y.; John McDougall, Ralphton, Man.; James P. McVicar, Petrolea; John M. Mitchell, Morristown, New Jersey; W. H. Murphy, Jr., Brighton, Mass.; Charles L. Manning, Grand Ledge, Mich.; Patrick H. Morin, Port Colborne; F. J. Neff, Long Glade, Virginia; Jacob F. Olweller, Elizabethtown, Pa.; Herbert J. Pugsley, Central Cambridge, N. B.; John W. Purdy, Oliver, nt.; Howard O. Ramsey, Merle, Cal.; Ulysses S. Richards, Lowell, Mass.; Albert J. Roll, Natrona, Pa.; William L. Rundle, Chapman Quarries, Pa.; John Russell, Saginaw, Mich.; John A. Scott, Grand Rapids, Mich.; J. Lee Shorey, Hoosick Falls, N. Y.; John E. Sommer, Buffalo, N. Y.; W. A. Sproule, Boissevain, Man.; J. M. Sewell, Bunker Hill, Ill.; Edward M. Saigeon, Lapeer, Mich.; William Benj. Wentzell, Amherst, Mass.; James M. Young, Petrolea.

CORRESPONDENCE.

LEGISLATION IN ILLINOIS.

CHICAGO, April 14, 1899.

Editor American Veterinary Review:

DEAR SIR:—The veterinarians of Illinois certainly have reasons to regret the onslaught made on their veterinary bill by the REVIEW in the editorial pages of the April number. Is it not a pity that the REVIEW should attempt to deal such a blow just on the verge of passing a veterinary bill for our State?

The bill, so unmercifully scored, has been officially endorsed by The Chicago Veterinary Society, The Illinois Veterinary Medical Association and The Illinois Veterinary Medical and Surgical Association. It was thoroughly digested and considered, and while all agree that a more stringent measure would be of greater benefit to the graduate veterinarians of the State, it was also conceded that no other measure could pass an Illinois legislature at present. The various sections were discussed and fairly considered, and Sec. 4, which seems to irritate the REVIEW editor so badly, was not overlooked. To say that this measure is "audacious," and that Sec. 4 or any other section will be used as a means of admitting everybody or anybody in the veterinary profession who "has the price of the fees," is certainly a very violent supposition on the part of the REVIEW editor. Imagine, if you can, three veterinary examiners, three live stock commissioners and their secretary, "putting their heads together" for the dishonorable purpose of admitting persons into the veterinary ranks who are unqualified, in order to secure a small fee. Such an assertion is really cruel and unjust. Let us hope the worthy editor was only jesting.

Sec. 4 does provide for an examination of any one who wishes to apply for the same precisely as our medical laws provide. Yet during twenty years under this law it has never been abused nor has any person been admitted to practice of medicine who is not worthy of the honor. In including this section we have acted on the supposition that the veterinarians of Illinois are as honest as their medical brothers, and will see to it that only qualified men enter the practice in the future. Are we not justified in placing our confidence in three veterinary examiners, or are we to act on the supposition that all men are dishonest?

The Illinois veterinary bill is evidently misunderstood by the REVIEW editor. The object of the bill is to place the veterinarians under control of the Board of Live Stock Commissioners precisely as the medical practitioners are under the jurisdiction of the State Board of Health.

Now, if our Board of Examiners, the State Board of Live Stock Commissioners and their secretary (seven in all) are dishonest, dishonorable, mercenary shysters, then the Illinois law is indeed a bad one, and the REVIEW'S deductions are logical. But, on the other hand, if a majority of them are even fairly honest, the veterinarians of Illinois may justly congratulate themselves on having the best law yet passed by any State, in-

cluding New York. Let us suppose that occasionally some non-graduate applies for a license. He, like others, will be required to pass an examination in chemistry, anatomy, physiology, pathology, meat inspection, bacteriology, surgery, materia medica, practice of medicine, and any other branches the board may designate. Should he be found qualified, I say, "Let him in." The REVIEW editor will doubtless say, "Turn him out." On this point we shall probably always differ.

It must be understood that Illinois has no State Veterinary College, so any measure without such a clause would be regarded by legislators as an enactment to enhance the interests of the private colleges in Chicago. The REVIEW editor evidently did not think of this. Besides, in canvassing the legislature we found it would be impossible to pass a bill that did not recognize the non-graduate practitioners, nor one that created a new board, nor one that provided for any special course of study, or did not give equality to all persons, irrespective of their particular kind of college training.

During the present legislature, thus far, all educational measures—The Harper Bill, the Medical Bill, the Pharmacists Bill—were "turned down." The exception is the Veterinary Bill, which has gone through the necessary steps unopposed, which certainly shows the foresight of its promoters.

I only ask the REVIEW to be fair, and withhold judgment until the "audacity" growing out of this measure becomes a reality instead of a wild suspicion.

As to the State Veterinarian of Illinois, the REVIEW continually makes the assertion that he is a "political creature," without even the rudiments of an education. I do not profess to understand what is meant by "political creature," but assure the REVIEW editor that the latter part of the statement would be very difficult to prove and would be refuted by any competent judge. Would it not be better for the REVIEW to attack his official acts, rather than simply surmise that he is a bad man without quality, and then continually preface every reference to him with adjectives to suit the suspicion. The facts in the case are that Dr. Lovejoy has been a great disappointment to those who have attacked him, because in all his work he has shown no evidence of incapacity or deficiency which was predicted, but, on the contrary, has won the universal praise of all just and fair-minded men who have had the opportunity to observe his doings.

I do not wish to defend empiricism nor to endorse the ap-

pointment of non-graduate veterinarians to official positions, but I do wish to go on record as stating that the present State Veterinarian of Illinois is worthy of the position he has so creditably filled during the past two and one-half years.

Very sincerely yours,
L. A. MERILLAT.

STATE VETERINARY LAWS AND STATE VETERINARIANS.

LINCOLN, NEB., April 6, 1899

Editors American Veterinary Review:

MY DEAR SIRS:—Kindly permit me to say a few words with regard to veterinary legislation and the State Board of Health.

It is a noticeable fact that almost every legislator in his respective State is called upon to enact laws relating to veterinary and sanitary questions. These laws are year by year being more rapidly enforced. The boards are asking for more appropriations, which is just. And it is a surprising fact that in some States the Legislature is entirely ignorant of the amount of good that this State work is doing. If these State legislators were asked to appropriate the minimum sum for a State Board of Health to which the veterinary department is connected, and especially veterinary sanitation, many of them would invariably ridicule the veterinary services; but if these men were acquainted with the losses that occur through lack of such services and with the good that veterinarians can do their respective States, they would certainly vote for appropriation. For example, the State Legislature of California is now asked to enact some laws which if passed will be the best laws in the United States, in regard to this particular subject; and these laws would probably never have been passed in that State had not the farmers and the stock-raisers of the State been thoroughly frightened by the State becoming infected with Southern cattle ticks, which caused all the other States to quarantine against it. This has opened the eyes of the people, and to-day they are asking for protection. Minnesota has, I believe, the most conservative law in the Union in regard to this subject and one of the best men to enforce the State law. This can be clearly shown by the way they have handled glanders and by the way they have handled the quarantine system; and they have given other States something to go by. This question that is now being so vigorously taken up in Minnesota will no doubt be taken up in the future by other States but, as I have intimated, it will take time for the Legislature in other States to be taught the lesson that the State of

Minnesota has already learned. There are many other States that probably would take this matter up, but they cannot secure the support of their legislators and it is only hoped that Minnesota will give us more of an example in the future and that she will not be cramped for funds, but can vigorously show us what can be done in the way of quarantine and the eradication of contagious diseases.

Every State veterinarian in other States of the Union should be part of the State Board of Health, and should work in his respective State to secure that kind of legislation that will enable him to be a part of the State Board of Health and that will secure in the near future uniform laws in this direction. I only hope that it may be possible to secure laws in the direction of quarantine and investigation of imported stock, all to be uniform throughout the Union, and I believe that by the State boards having a veterinarian connected with them that it can very easily be perfected. I hope that the State of Nebraska, which is following up the laws of the State of Minnesota, will succeed in its law that is now before this Legislature, and that it will be as successful as that State in eradicating disease from its borders.

Very truly yours,

A. T. PETERS, D. V. M.

OBITUARY.

RICHARD KAY, M. D., D. V. S.—On Sunday evening, April 2, at his residence, 371 West 35th Street, New York City, this well-known and esteemed veterinarian died from heart-failure, induced by gastro-enteritis following an attack of the grip. The deceased was born in England about fifty-five years ago, where he learned the trade of cabinet-making, but on emigrating to America engaged in the cattle business. Dr. W. D. Critcherson, of New York, who was an intimate friend of Dr. Kay for many years, informs us that through frequent exchange of confidences he learned the following facts in reference to his history prior to entering a veterinary college: He landed at Portland, Maine, and went from there to Bloomington, Illinois, where he met by chance a representative of the Japanese government, who was purchasing sheep for shipment to Japan. He accompanied him to San Francisco and thence to Yokohama, where he remained for four years in the employ of the government. Returning to America in 1880 he went to his brother's ranch in Washington Territory. The next year he entered the American Veterinary

College, from which he graduated in 1883 in the class with Dr. Critcherson, and together they occupied the positions of house surgeon to the hospital in 1884. Following the termination of that service, he and Dr. Hamilton Vreeland entered the University Medical College. After receiving his degree from this school, he married Miss Esther Quail, of New York, and entered the employ of the Broadway Railroad Company, remaining there several years, and then became attached to the staff of the Board of Health, thence serving for several years upon the inspection corps of the Bureau of Animal Industry. The latter years of his life were spent in private practice on the west side of New York. He leaves a widow and one son, twelve years old. The funeral services were held on the 5th, interment being in Cypress Hills Cemetery. Masonic services, conducted by Excelsior Lodge, No. 195, F. and A. M., were also held. He was a member of the U. S. V. M. A.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The nineteenth regular meeting was held in Kansas City, Mo., on Monday evening, February 27, 1899, at the Kansas City Veterinary College. On account of the absence of the President, the association was called to order by the Vice-President, Robert C. Moore. The following members were present: Drs. John Forbes, James S. Kelly, John B. Wright, James L. Otterman, E. J. Netherton, William A. Heck, St. Joseph, Mo.; Drs. R. C. Moore, J. B. Black, S. Stewart, B. F. Kaupp, C. J. Sihler, F. C. McCurdy, James S. Buckley, Kansas City, Mo.; E. H. Biart and John Ernst, Leavenworth, Kas.; J. H. Cock, Ottawa, Kas. The following visitors were present: Drs. H. B. Chaney, C. H. Canfield, R. T. W. Carnachan, H. H. George, Albert Long, D. W. Patton, W. R. Cooper, and A. C. Ewart, of Kansas City, Mo.; James Wilson, J. E. Blackwell, and Thomas H. Ripley, of St. Joseph, Mo.; O. Nickson, Cameron, Mo.; G. R. Conrad, Sabetha, Kas.; W. N. Hobbs, Holton, Kas.; W. A. Porter, Sedalia, Mo. There were also present about thirty veterinary students and several laymen.

The censors reported favorably upon the following applications for membership, and upon motion the rules were suspended and the Secretary instructed to cast the vote of the asso-

ciation for the candidates: Jas. L. Otterman, W. N. Hobbs, and W. Ross Cooper.

The resignation of Dr. Burgess, who had removed from St. Joseph to Louisville, Ky., where he could not attend the meetings of the association, was tendered and duly accepted.

A paper on the "Injuries of the Flexor Metatarsi" was presented by Dr. R. C. Moore, as follows:

INJURIES TO THE FLEXOR METATARSI.

This muscle being the sole flexor of the metatarsal region, as well as a check ligament to the same, renders lesions to it of particular importance. Their occurrence in the horse is far from being rare and is sometimes noted in bovines. In herbivora this muscle is composed of two quite distinct parts attached to each other by tendinous intersections. The one part is muscular with tendinous insertions, the other a tendinous structure that might well be considered a check ligament. The tendinous portion arises with the extensor pedis from the distal end of the femur from a depression just above the articular margin between the external condyle and trochlea, passes down through the superior tibial groove, clothed by a reflection of one of the synovial membranes of the stifle joint, passes down over the external and anterior face of the tibia, where it contacts and exchanges numerous fibres with the muscular portion and extensor pedis. Gaining the anterior face of the astragalus it forms a ring for the passage of the tendon of the muscular part, and bifurcates, sending one tendon externally to the cuboid and one downward to the head of the large metatarsal. This portion forms a ligamentous connection between the femur and tarsus and metatarsus, and acts as a stay to prevent undue extension of the metatarsus on the tarsus and the tarsus on the tibia.

Some authors ascribe as a part of its action the flexion of the tarsus and metatarsus during extension of the stifle, but they are, to my mind, in error, as extension of the stifle cannot increase the distance between its point of origin and insertion, but it is probable that it may possess this action to a limited degree during flexion of the stifle. The fleshy portion, or the real muscle, arises from the supero-external part of the tibia just below the groove, becomes tendinous at the distal end, passes through the ring formed by the tendinous part and bifurcates, sending a large, strong tendon to the head of the large metatarsal and a small one internally to the cuneiform parvum.

These structures are subject to injuries, extending all the way from a slight strain of the fibres of some part of their

structure to complete rupture, or they may be severed by cutting instruments or fence wire, or the contractile power of the muscular fibres destroyed by bruises.

Symptoms.—The symptoms are so marked that once seen they will never be forgotten. If the animal be standing on the affected limb when you observe him, you will not detect any unsoundness, provided no external lesions exist, but the moment this weight is shifted from the foot it is drawn backwards, the tarsus being extended on the tibia by contraction of the gastrocnemius, which is the opposing force to the flexor metatarsi, and as a result the tendons of these muscles above their attachment to the summit of the os calsis is greatly relaxed, so much so that the skin of the region is corrugated or thrown into folds, and should you first see him in this position you could not help thinking the distal end of the tibia had sustained an oblique fracture, causing a shortening of the bone, but when you inspect it in its normal position, bearing its share of weight without deformity, the thought of fracture will be dismissed.

The next thought will most likely be directed to the tendo-achilles, but if we consider that this is the support of the posterior part of the hock and any inability on its part must allow the hock to drop down with tarsal flexion the instant weight is placed upon it, and no such symptoms are present, but, on the contrary, the hock supports the weight with its usual firmness, we must likewise banish from our minds the possibility of injury to this structure or to the muscles operating through it. After canceling these possibilities, we look deeper into our case and readily perceive the inability to flex the metatarsus and tarsus on the tibia, and, knowing that but one structure performs this function, we have proven beyond a doubt that the injury is to the flexor metatarsi.

Percivall's "Hippopathology," Vol. IV, Part II, page 337, quotes from Solleysel a beautiful description of this accident, but he unfortunately ascribes it to the tendo-achilles and calls it the master sinew, but his description is so perfect I cannot resist the temptation to copy it. "This," he says, "is the biggest and most visible sinew in a horse's body, which, by reason of a strain occasioned by hard riding, evil shoeing, going down a steep place, a slip or fall, or too heavy burden, may be relaxed, and sometimes disturbed with so much violence that it becomes movable like an unbent bow-string. When a horse walks, the leg seems to hang at the hough, because its motion is not regulated by the master sinew; and you would even sometimes

imagine that the bone was broken. When a horse stands with his foot fixed on the ground, the hough being extended in its natural posture, there is so little appearance of any grief in the leg, that it seems perfectly sound; but if you handle the master sinew, you will find it more movable than that of the other leg; and if you make the horse move his hinder parts, you will immediately perceive the sinew to be as loose and infirm as if it were broken."

The causes are varied, but anything that will cause extreme extension of the tarsus and metatarsus is liable to injure the muscle or its tendons, more particularly the tendinous portion. Falling forward, dragging the hind legs behind him, the hind foot becoming engaged or fast and the horse straining violently to free it. Bruises from kicks, being run into by wheel of a vehicle, sharp cutting instruments, barb-wire fences, etc. I have seen two cases where the entire structure was cut off near the distal end of the tibia on wire fences and two cases where the muscles were bruised respectively by being run into and falling. The two latter recovered, but it was thought best to destroy both those cut on the wire.

Prognosis will depend very largely on the extent of the injury. Where complete rupture of the entire structure has occurred resolution can scarcely be expected, and the same will be true if they are torn loose from the bone, although in the worst cases if the foot is kept well forward recovery may take place.

Treatment.—Perfect rest is essential, with slings for the horse if he will bear them. The leg should be kept well forward by a cord secured to the fetlock and around the neck, hot fomentations to allay the inflammation and stimulating liniments will be sufficient. Rest should be prolonged until all signs of the lesions have disappeared. If an external wound, antiseptics and astringents are required.

DISCUSSION.

Dr E. J. Netherton: I wish to inquire of the essayist in how long a time he would expect full recovery in these cases, and whether it would be worth while to treat an animal of small value?

Dr. Moore: This would depend upon the extent of the injury. If it is a simple bruise of the muscular tissue ten to twelve days would be sufficient. If the tendon be ruptured or nearly so, it will take much longer. There have been several cases reported in which the period of convalescence was ten to

twelve months. If it be a valuable animal, it will justify treatment for a considerable length of time.

Dr. Heck: This reminds me of a case that Dr. Patterson and I diagnosed as rupture of this muscle. The case recovered in ten days and seemed too rapid to justify the diagnosis. It was a case of a mule that was used on an express wagon. We got some very fine photographs of the case, but I forgot to bring them with me. It had every symptom of rupture of this tendon or muscle. It might have possibly been temporary paralysis of the nerves of this region. The animal could bear the weight of the body on the limb when placed in position, but had no further use of it.

The following paper was next presented by Dr. S. Stewart, entitled

ECHINOCOCCUS VETERINORUM.

In the substance of this liver, which is offered for your inspection, you will see a number of ovoid or spherical translucent bodies, varying in size from one inch to three inches in diameter. Some of them are apparently just beneath the capsule, while others are nearly hidden in the liver structures. There are still others which are entirely within the substance of the organ. These bodies are cysts and typical of the cystic phase of the echinococcus veterinorum, and constitue the hydatid disease of the older text-books. About five hogs in each one thousand slaughtered in this section of country are bearers of the cystic echinococcus. These cysts may develop in any part or tissue, but are rarely found outside of the liver. The lungs are next in frequency of invasion. The dog is the host of the adult tapeworm, but nearly all animals may be the host of this cystic or larval form. In Iceland and continental Europe numerous cases of hydatid disease in mankind are recorded; a few cases have been reported in the United States. On account of this fact a thorough knowledge of this parasite is of sanitary importance to veterinarians.

Upon division of the walls of this cyst which I have selected you will note there escapes a quantity of clear, limpid fluid, and the wall is composed of two distinct layers. The outer layer is quite dense and intimately adherent to the surrounding structures; in fact, it appears to be a protecting wall developed from the tissues to resist the encroachment of the growth within. The inner layer is also quite thick and dense, and, while everywhere closely coaptated to the outer wall, it is very feebly adherent to it and is very readily separated and withdrawn through the in-

cision just made. One distinctive characteristic of this membrane is a very persistent tendency of the cut edges to roll up. In fact it is almost impossible to make it lie spread out upon a plain surface or on the palm of your hand. This powerful tendency to roll up is not possessed by any other membrane, according to some writers; hence when we find such a membrane, even when lacking particular characters soon to be mentioned, we may be reasonably certain the structure under observation is the mother membrane of an echinococcus cyst.

A close inspection of the inner surface of this mother membrane shows it to be studded over by a great number of very small greyish white bodies or granules which are loosely adherent and may be easily scraped away. I have mounted a number of these minute bodies on a microscopic slide and if you will examine them under a lens magnifying 75 to 100 diameters you will readily see that these little bodies (proliferous cysts) contain from 15 to 30 pediculated tapeworm heads. Each head is provided with two oval disks, called sucker disks and a rostellum of hooks. They constitute the fixation apparatus of the future worm. In nearly all the heads these organs are invaginated.

In these drawings pinned on the wall you have a magnified picture of a typical hydatid, and a representation of the more common modifications, such as the daughter and granddaughter cysts which develop from the mother membrane and may produce the little granular bodies containing the tapeworm heads. Sometimes many small cysts are found, but in which the minute tapeworm heads cannot be found. These are known as acephalo cysts.

This last drawing represents the adult worm as found in the intestines of the dog. The mature worm varies from one-sixth to one-fifth of an inch in length and is composed of only three or four segments, the last one of which is nearly as long as the first three, is sexually mature and contains several thousand eggs. It is readily understood that a dog which eats two or three cysts such as we have just examined, would become infested with a large number of these parasites. The heads attach themselves to the walls of the small intestines and become mature within 60 days, thereafter releasing the last or fourth segment as soon as ripe (ovulation completed) and continuously developing others. In this manner myriads of eggs are produced and pass out with the fæcal discharges. The segments become dried, powdered and the fragments are blown about by

the wind. In this way the eggs find lodgment on all kinds of food stuff and with it are conveyed into the stomachs of animals and even man. The digestive processes in the stomach liberate the embryos in the eggs, which may permeate the walls of the intestines, enter the blood stream and find lodgment in any organ or part of the body, there to develop into cysts like these. Sometimes in man the cysts develop to immense proportions, or undergo degenerative changes which compromise the health and finally the life of the host.

Dogs infested with large numbers of these worms (tænia echinococcus) may suffer reflex nervous irritation with cerebral disturbances, including a state of frenzy, which may be mistaken for rabies. A post-mortem examination of the intestines of infused dogs would not reveal the presence of these worms to the casual observer, owing to their minute dimensions, but they are easily found by the close observer, and appear as short yellowish threads or filaments attached by one end to the mucous membrane. The prevalence of hydatids in swine indicates that many dogs, particularly those belonging to butchers and farmers, are infested with the adult worm. If butchers and farmers would cook or burn all organs of swine containing the cysts, instead of giving them to their dogs, the tænia echinococcus and its hydatid would soon be annihilated, and this menace to the public health be removed.

DISCUSSION.

Dr. McCurdy: I understood the essayist to say that the adult worm was only found in the intestinal tract of the dog. I wish to inquire if this worm does not sometimes migrate to some other parts of the body.

Dr. Stewart: So far as I am informed, no cases have been reported where the adult worm was found in any other part of the body than the intestines. The worm is fixed in its location by its hooks and sucker disks and lives by absorption of food intended for its host. The disease is found most frequently in man (in the hydatid form) in Iceland, where the people and dogs closely cohabit.

Dr. McCurdy: Do the records show whether the disease is prevalent among the Indians and Chinese, where the dog is consumed as food?

Dr. Stewart: The records do not show such prevalency and the parasite is not communicable through eating the flesh of the dog, but it is only acquired by the ingestion of the eggs of the adult tapeworm. In countries where the hydatid form of

this disease is prevalent among the people, it is found that it is also prevalent among the food-producing animals.

Dr. McCurdy: I think of another question. It seems to me that I have seen the cysts very much larger and of a slightly darker color. Do they vary in color?

Dr. Stewart: The cuticular and mother membranes undergo changes as the hydatids become more and more aged. The cysts become opaque or white and undergo degeneration and the original structures become so transformed that it is difficult if not impossible to determine their original character. Often the question is determined by finding the cephalic hooks.

Dr. Cock: Are there any means by which we can diagnose this in the hydatid form either in man or animal ante-mortem, and have we any secure means of confirming our diagnosis?

Dr. Stewart: This is certainly a very practical side of the question from the human standpoint. If some of the contents of the cyst be secured by the exploring trocar, there is no doubt the proliferous cysts or individual heads would float out with the fluid, and by microscopical examination the character of the cyst would be determined in this way.

Dr. Cock: It seems to me that it is stated that its character may be determined by the absence of albuminous material in the fluid.

Dr. Stewart: I think the absence of albumen is noted in the fluid obtained from a variety of cysts.

Dr. Heck: This discussion concerning the character of the cystic fluid calls to mind our discussion in a former meeting concerning the character of fluid contained in the cystic kidneys, and it might not be out of place for me to revert to the subject here. I have made some analyses of the fluid obtained from cystic kidneys, and have found it to be as follows: Alkaline in reaction, specific gravity 1007, albumen in large quantities. I would be pleased to hear other reports in regard to the cystic kidneys. I find there is a disease or condition in human practice known as hydro-nephrosis. Whether this is analogous to our cystic kidneys I am not able to say, but the resemblance is very striking. They are supposed to be a collection of the urine developed through obstruction of the uriniferous tubules or occlusion of the ureters themselves. These cysts do not always contain urine, but sometimes contain fluid of a urineverous nature.

After the discussion recess was taken to exchange greetings with those who had come in since the opening of the meeting

(*To be continued.*)

CHICAGO VETERINARY SOCIETY.

On Thursday, February 9th, President Robertson called the regular monthly meeting to order, with Drs. F. McCoy, L. A. Merillat, W. E. Howe, L. Campbell, E. L. Quitman, President Robertson and the Secretary present, showing their courage by braving the bitterness of twenty degrees below zero, and they were well repaid, even though they were compelled to endure the hardship of a meeting room as cold as the street corner.

On motion by Dr. E. L. Quitman, supported by Dr. Campbell, it was resolved to suspend the roll-call and regular order of business and afford Dr. L. A. Merillat an opportunity to present some very interesting facts concerning the ups-and-downs of a bill before the State Legislature, its course back and forth, how it is lost and found, harried and balked by amendments and discussion. Also the great need of a good lobbyest to keep track of it until it is passed or killed.

After discussing the methods of advancing legislation, he presented a bill for the society's consideration for State regulation of the practice of veterinary medicine and felt quite confident that it would become a law if properly pushed when presented to the legislature for action. Its merit was discussed at length, and on motion by Dr. E. L. Quitman, supported by Dr. McCoy, it was resolved that the society approve of it and exert every effort for its advancement.

MARCH MEETING.

The regular monthly meeting was called to order, Thursday, March 9th. President Robertson presided and the following members attended: Doctors F. Allen, L. Campbell, Jos. B. Clancy, O. R. Dubia, Jas. G. Fish, W. E. Howe, F. McCoy, C. G. Nelson, H. D. Paxon, Jas. Robertson, R. G. Walker, and H. Busman, of the U. S. B. A. I., visiting.

The roll-call was dispensed with. The minutes of the previous meeting were read, and, there being no objection, were ordered approved.

President Robertson, while waiting for a few tardy members to appear before proceeding with the regular programme, read some of the scores of letters received by members from senators, representatives and citizens, who complied with requests made of them to exercise all possible influence for the advancement of an amendment to the army reorganization bill, as petitioned by Dr. D. E. Salmon, Chairman of the Committee on Army Legislation of the American Veterinary Medical Association.

Speaking for this city, he expressed the opinion that veterinarians here had done their duty in the matter, as evidenced by the numerous letters before him and felt that the committee had earned the praise and gratitude of the whole profession for the labor achieved.

On motion presented by Dr. Walker, it was resolved that the Legislative Committee communicate with the different candidates for the office of mayor and ascertain, if possible, their intention regarding the appointment of a qualified veterinarian to attend to the medical needs of the horses of the city police department, now attended by a former patrolman.

The Secretary was ordered to forward excerpts of the foregoing resolution to the city press, on motion of Dr. Fish, supported by Dr. Dubia.

Dr. R. G. Walker then read a paper as follows:

DR. ROB'T G. WALKER'S PAPER.

Gill-Flirt, Laceration of the Perineum.—The injury is a laceration of the space between the anus and genital organs, sometimes including the sphincter ani. In this case fæces pass from the rectum into the vagina. The voiding of fæces is to some extent difficult and more or less incomplete and offensive. Many mares in this condition have been used as brood mares with good results; cases are reported by members of the profession to have made complete recovery after surgical treatment. The so-called gill-flirt I consider unsound.

Paralysis of the Sphincter Ani, of Tail and Paralysis of the Penis.—If such condition exists at time of examination it constitutes an unsoundness. Paralysis of sphincter ani or of the tail is generally the result of a blow or force applied to the rump, which sometimes causes a fracture of the sacrum and injury to the nerves supplying the tail and rectum, including the muscles of that region. You can have paralysis of the tail without paralysis of the sphincter ani and again both conditions at the same time. I have had many cases of paralysis of the tail that have made successful recovery. The same cases came early under my care, say five days after an accident or as soon as the condition was noticed by the owner or attendant. Have seen horses in hands of horse dealers that could neither raise nor switch their tails. How long they have been that way I could not tell, but do not think that any treatment would be successful. Veterinarians examining horses for soundness should not omit examining tail.

Curvature of Spine, roach or high back, the opposite of low

back, is frequently produced by animal being put to draw and back heavy loads when very young, but many cases are not the result of work, as in many cases and the same conditions have been noticed long before the animal had any harness on; when it occurs to a moderate extent only it does not impede animal in his work and therefore he is sound. When it is a positive disfigurement to the horse it is said to be a blemish. When the horse is weakened or the horse is thereby impeded in his work he is unsound, however.

Melanosis.—Common in gray and white horses on the black part of the skin at the root of the tail, around the anus, vulva, udder, sheath, eyelids and lips. Some authors recommend removal with a knife, others recommend no treatment. I have seen cases where members of the profession have operated where very bad results followed. In all cases that have come to my notice where I have been able to keep track of the animal, the older the animal the more aggravated the case, therefore I would not hesitate on examination to pronounce the animal unsound.

Enchondroma of Cariniform Cartilage, unsound.

Broken Ribs on examination, unsound. I have treated several cases, which have all made speedy recovery, leaving no bad effects. I have always applied cold pack on wet blanket, keeping the animal on laxative diet, noting the pulse and temperature.

Sitfasts.—It would require to be a very much worse case of sitfast than any that has yet come across my path to be pronounced unsound, as in all cases I have had of sitfast, speedy recovery with very little treatment followed, but I would advise that client be informed, as bad results might happen if care be not taken.

Lumbar Anchylosis, unsound.

Phymosis.—A morbid condition of the prepuce or sheath, which from contraction of the orifice prevents the drawing in or exit of the penis (Percivall). Blows, kicks, contusions, wounds, abscesses within the sheath may all be set down as occasional causes (Williams). On examination and finding such condition, unsound.

Paraphymosis.—The penis is protruded in paraphymosis and cannot be withdrawn within the sheath. It may arise from injury or from some debilitating disease, as in purpura, frostbite, etc., very often these being the cause. I have had several cases the result of frostbite. The first case that came to my notice

was in a hospital of a city veterinarian and lasted for several weeks. Amputation was resorted to, but with very bad results. The last case I saw had been under the care of a local veterinarian, who had amputated a portion of the penis and returned animal to the owner, who was a horse dealer. Horse dealer disposed of animal to a client of mine, and the third day after the purchase I was sent for and was informed that the horse could not make water. I was satisfied by the symptoms that the owner was right, and so got hold of the penis with the intention of using the catheter, but found amputation of a portion had been performed. I so informed owner, but it was impossible to pass catheter, so I recommended to try and return horse to dealer. An arrangement was made that the dealer should take back the horse, which he did in a few days afterwards and the horse died in dealer's stable the next morning. I think that very unsatisfactory results follow the amputation of a portion of penis, and, if satisfactory, the length of time it takes for animal to recover the owner would object to pay bill. Besides, the owner might have many lawsuits on his hands on account of the animal urinating on the sidewalk in place of the street. The cases cured by frostbite that I have treated have caused me very little trouble and in no instance have I had a return of the trouble. I have always used an ointment of boracic acid, benzoin and cosmoline, covering the penis entirely with ointment and cotton batten, using a support, tightening the support the second or third day, redressing again and repeating support two days more. Then pushing the penis as far up into the sheath as possible, using support again and at the end of two days again. I have always been able to get all of the penis up into the sheath, still using the support and placing cotton up into the sheath, and in a very short time the animal made a successful recovery.

Paralysis of Penis, if existing at time of examination, is certainly unsound. I have had one case of paralysis of the penis that I treated just in the same way as frostbite. The animal was in my hospital for 30 days, when he was able to go to regular work. The following July the horse was returned to my hospital in the same condition, treated as before, working in 30 days, and it is now seven years since, and animal when I saw him last, about four months ago, was doing his regular work and no paralysis of the penis existed. Have always treated such animals with laxative diet and nux vomica.

Mammitis (Inflammation of mammary gland).—Unsound.

I have been very successful in mammitis after applying camphor and lard, but have had no good results from hot fomentations, poultices or belladonna ointments.

Orchitis (Inflammation of testicles).—Unsound.

Cancer of Penis.—Unsound.

Hydrocele (Dropsy of the scrotum).—Unsound.

Hernia.—Unsound.

Scirrhus Cord.—Unsound.

DISCUSSION OF DR. WALKER'S PAPER.

Dr. Paxton: Dr. Walker mentions a case of a paraphymosis due to paralysis and recommends simply a suspensory, which has no therapeutic value. I think an amputation in some cases would have been safe.

Dr. Walker: The horse I referred to that was operated upon and died was of no great value. I was called to it when I knew that the horse could not live. I made an examination, but could not find any opening, and no water, but matter, came out of the penis. If it had been a very valuable animal I probably would have advised operating again, but I thought it was a hopeless case anyway when the pus came out in this way, and therefore I thought it best not to operate. Every case that I have seen operated upon proved very unsatisfactory. As to the one I treated with a support, I had so much success with similar treatment that I considered it the best method.

Dr. Allen: I cannot agree with Dr. Walker as far as amputation of the penis is concerned. I have had two or three cases that I operated upon and they are all right, though I do not claim to be a better operator than anybody else.

Dr. Howe: Dr. Walker, I would like to ask, in cases where you amputated, how much did you remove from the penis?

Dr. Walker: From four to six inches.

Dr. Howe: I operated on one, but do not know result.

Dr. Robertson: I had one case where a horse's penis was very badly swollen for some time and when brought to me the top was ready to slough off. I amputated the head and seared it. Had considerable hæmorrhage, but searing stopped it. The horse seems to be working all right ever since. I do not see why there should be any trouble following amputation of the penis. In my opinion this case of paralysis that the doctor mentions that resulted favorably by treating it with ointments, was because the support and the ointment relieved the inflammation considerably. I have seen several cases where a support without fomentations was all right. I know of another

case treated by Dr. Hughes where cold fomentation had good effect. When complete paralysis of the penis exists, it is rather hard to return the penis to the sheath.

Dr. Clancy: How do you operate, Dr. Allen?

Dr. Allen: Put in an old catheter, make a circular incision with a knife and then use the ecraseur.

Dr. Busman: I had two cases I operated upon and both with good results. One was where the penis was frozen during the winter and the other was the result of a scirrhus cord. The one with the frozen penis was brought to me in spring. I operated on both with good results. Mode of procedure: I left about two inches of the urethra to be stitched back, and the remainder I cut off with an ecraseur and left the catheter in for about three days.

Dr. Campbell: Did the stitch come out?

Dr. Busman: I do not think it did, anyway not to my knowledge.

Dr. Robertson: I believe the essayist said that he pronounces a case of sitfast as sound. Does he do so in every instance?

Dr. Walker: I had some cases of sitfast that were in very bad condition; still, I never had a case that was incurable. A dealer never tries to sell a horse with sitfast that has gone so bad that it could not be cured if properly attended to. Anyway I recommend the client to give the horse proper attention.

Dr. Campbell: What is the best way of curing sitfast?

Dr. Walker: Simply cutting it out.

Dr. Dubia: I do not think that anybody would be justified in passing an animal as sound if the owner must spend money to treat it afterwards for blemishes existing at the time of examination.

Dr. Walker: I tell the purchaser about it.

Dr. Robertson: In regard to melanotic tumors, do you say that removing them is not a successful operation?

Dr. Walker: In many cases not.

Dr. Robertson: I had one case in a gray mare. The size of the tumor was nearly as large as a man's head, weighing about 8 pounds, which I removed successfully and had very little hæmorrhage.

Dr. Campbell: Did any one of the members see a case of melanotic tumors in any other but a gray horse?

Dr. McCoy: I have seen some in a chestnut, but they were very small.

Dr. Allen: The essayist states that scirrhus cord is unsound. How can you differentiate a case of very small scirrhus cord and a case of recent castration?

Dr. Walker: I would make a very close examination and if the animal was but recently castrated, I would call the attention of my client to it.

Dr. Allen: Can a scirrhus cord be treated with iodide of potash successfully?

Dr. Walker: Yes.

Dr. Allen: Would you treat a very bad case with iodide of potash, say one weighing seven or eight pounds?

Dr. Walker: I might. I have never removed one myself, but I understand that bad cases were treated successfully with iodide of potash.

Dr. Robertson: I had a case of that kind in a horse that had quite a discharge from the scrotum. I inserted a probe, opened it up a little so as to have room for the syringe and treated the horse internally with iodide of potash and in two weeks the horse was all right.

Dr. J. G. Fish will lead the discussion on Glandular Diseases of the Throat, Obliterated Jugular, Crestfallen and Wry Neck in their relation to soundness at the April meeting.

After a brief informal discussion it was resolved to adjourn.

JOS. B. CLANCY, D. V. S., *Secretary.*

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

This association held its semi-annual meeting at the Capital Hotel, Lincoln, February 21, 1899. It was one of the most interesting sessions the association has ever held, as evinced by the intense interest in the discussions following the papers. The meeting was called to order at 3 o'clock by Vice-President Dr. George P. Tucker, of Lincoln. The following members were present: Drs. E. T. Bowers, Hastings; A. Bostrom, Minden; J. J. Drasky, Crete; C. F. Leslie, Wahoo; A. T. Peters, Lincoln; H. L. Ramacciotti, Omaha; G. P. Tucker, Lincoln; V. Schaeffer, Tekamah; S. D. Cosford, Lincoln; G. R. Young, Omaha; J. S. Anderson, Seward, and A. W. Thomas, Lincoln; and J. D. Sprague, David City. Mr. Heath, of the *Nebraska Farmer*, Mr. Fassett, of the *Western Swine Breeder*, and V. C. Barber, of the Agricultural Experiment Station, were present as visitors.

It was decided to hold the next meeting in connection with the Iowa Veterinary Association at Omaha, next fall. An invi-

tation was extended to the Missouri Valley Veterinary Association to meet at this session.

House roll 475, the new veterinary bill, demanded much attention, and important testimony was brought out relative to its necessity for the protection of the veterinary profession, as well as the live stock interests of the State. Many outbreaks of rabies and other contagious and infectious diseases were reported, showing the necessity of Nebraska having a State Veterinarian. It was noted that Nebraska stands alone as the only State without such an officer. The bill has already passed the Live Stock and Grazing Committee and indications were reported as favorable for its passage.

Resolutions were passed extending the sympathies of the association to Dr. Solomon Bock, of Denver, who was recently stricken with paralysis and has been obliged to abandon an extensive practice. Resolutions were also passed expressing the association's thanks to Dr. Gresswell, of the same city, for his excellent work at the National Stock-Growers' Association in the interest of sanitary science and the veterinary profession. On account of the recent action of the Trustees of the Ames Veterinary College, of Iowa, relative to the removal of a competent veterinarian from its faculty, the Secretary was instructed to inquire into the matter, to ascertain the standard of the institution.

V. C. Barber, assistant animal pathologist of the Agriculture Experiment Station of the University, was elected honorary member of the association.

Officers continued for the ensuing term are: Dr. V. Schaeffer, Tekamah, President: Dr. Geo. P. Tucker, Lincoln, Vice-President; Dr. A. T. Peters, Lincoln, Secretary, and Dr. J. S. Anderson, Seward, Treasurer.

After adjournment of the afternoon session the members, upon invitation from Mrs. A. T. Peters, attended a delightful luncheon at her home.

In the evening Dr. J. S. Anderson, of Seward, read a paper on "Fistulous Withers and How to Operate Them." He regarded cutting as the surest method of effecting a cure. Though this method met with some opposition in the discussion that followed, Dr. Anderson very ably defended his manner of treatment of this very common affection with which the veterinarian has to cope.

Dr. J. J. Drasky, of Crete, then read a paper entitled "What I Saw at Omaha." After paying tribute to the association for

the able manner in which they entertained the national meeting of the American veterinarians at Omaha last September, he touched upon the benefits to be derived from attending these conventions. The main object of his paper, however, was to reprimand a veterinarian, who, in the course of a clinic before the above mentioned national association, acted in a most unprofessional manner and took occasion to belittle a skilled Omaha veterinarian. It was Dr. Drasky's desire that this reprimand be not made public, but the members, seeing the opportunity of thrusting a blow at "quacks," unanimously decided to publish his paper in the leading veterinary journals of the country.

"Cornstalk Disease in Cattle and Horses" was the subject of a most excellent paper by Dr. A. Bostrom, of Minden. He regarded death in cornstalk fields as not due always to the stalks, but that "fungus diseases" were the cause of much of the trouble. The discussion was long and earnest, and many new facts were brought to light, that may be fruitful of much interesting knowledge in the near future.

"My Experience with Black-leg Vaccine" * was read by Dr. Peters, the author of the paper, Dr. M. V. Byers, of Osceola, being absent. Dr. Byers stated in a clear and concise manner his extensive experience with the method of preventing the disease and showed plainly that it was the surest and safest method of prevention.

Dr. A. T. Peters, of the University, then followed with a history of black-leg vaccination, tracing it from its introduction in the old country, up to the present time. He explained how the vaccine was prepared and used, stating that it could now be obtained free of charge from the Agricultural Department. He said that 33,000 cattle had been vaccinated in Nebraska during the past year with most gratifying results. Dr. Peters' talk ended the programme, which, on account of the long discussions, lasted until after midnight.

The association voted to attend in a body the Improved Stock-breeders' and Swine-breeders' meeting.

A. T. PETERS, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at the New York Academy of Medicine, 17 W. 43d Street, at the usual hour, April 6th, by President Robertson. The following mem-

* Published elsewhere in this issue.

bers responded to roll-call: Drs. Bretherton, Bell, Clayton, Dickson, DuBois, Ellis, Hanson, Keller, McKellar, O'Shea and Robertson. Drs. Howe and Nicolas as visitors. The minutes of the previous meeting were next read and approved.

Report of Board of Censors.—Dr. Clayton, Chairman, reported that the committee favorably recommended for membership in the association Dr. C. H. Du Bois, graduate of the A. V. C., class of 1896, whose application had been filed at the last meeting. Moved and seconded, that the report of the committee be accepted and that Dr. Du Bois be declared a member of the association. Carried. Dr. Du Bois was then introduced to the members by Dr. Clayton.

Reading of Papers.—Dr. R. S. MacKellar then read a paper entitled "Paraldehyde in Veterinary Practice."* Dr. MacKellar's paper, brief and to the point, was listened to with keen interest by his fellow members, who gave expression to their interest in the discussion which followed:

Dr. Bell: I think the use of paraldehyde in veterinary practice is a revelation to most veterinarians, as I have never heard of its being used in veterinary practice for this purpose; and, therefore, this paper is of great importance, as by it we may profit by the experience of the essayist. I consider it a great advantage, as it permits us to do many operations standing in cases where we could not possibly have obtained the owner's permission to cast the animal.

Dr. Hanson: In human practice it is considered inferior to chloroform. Do you find it superior?

Dr. MacKellar: I regard it as superior for the purpose used.

Dr. Clayton: Are the effects upon the motor nerves less than with chloral? It has been recommended to me in castrating standing. How long does its effects persist?

Dr. MacKellar: Its effects on the motor nerves are less than with chloral, and persist for about an hour.

Dr. Clayton: Are there any bad after effects the next day?

Dr. MacKellar: None.

Dr. Nicolas: Is hæmorrhage less profuse than in use of chloral?

Dr. MacKellar: I have not noted any difference; but am not prepared to state positively.

Dr. Clayton: Does it at all retard the healing process?

Dr. MacKellar: No.

* Printed elsewhere in this issue.

Dr. Ellis: Have you experimented with it in colic?

Dr. MacKellar: No; in reading up on it in Finlay Dun we learn that it has no effect on internal pain.

Dr. Bell: To depart from paraldehyde for a moment, I would like to know the experience of some of the members present, on the use of acetanilid.

Dr. MacKellar: I used it upon a case of pneumonia with temperature 107 F.; horse so weak that he fell when man laid his hand heavily upon him (man being intoxicated), and got marked improvement from its use.

Dr. Bell: I am very enthusiastic over the results obtained from the employment of this drug, and clinical experience, with me at least, has disproved the charge against it as a heart depressor. I consider eight hours the proper period of time that should elapse between doses—allowing the temperature to slightly elevate after the effects of the last dose, and then repeat, and I consider two drachms to be the proper dose, given in conjunction with digitalis.

Dr. Clayton: Can you get the same results from a smaller dose than two drachms?

Dr. Bell: No; you must give two drachms to get the results, and for rheumatoid fevers, it is as near magical as anything in the drug line.

Dr. Howe: I did not come up here to say anything to-night, but I am interested in this discussion. A favorite prescription with me for influenza is a combination of acetanilid, quinine and digitalis.

Moved by Dr. Hanson and seconded by Dr. O'Shea, that a vote of thanks be extended to Dr. MacKellar for his interesting and valuable paper. Carried.

Reports of Special Committee to Investigate the Legality of the Appointment of Laymen as Meat Inspectors.—Dr. Hanson, Chairman, read a letter from the President of the Health Department, in which he states, that while he does not doubt the correctness of the preamble and resolutions contained in Dr. Hanson's communication of February 7, the Department under the law is compelled to take from the list certified to it by the Civil Service Commission, and has no voice or choice in the matter.

Moved by Dr. Clayton that the chairman of this committee send a registered letter to the Secretary of the Civil Service Commission, calling his attention to the former letter. Seconded. Carried.

Reports of Cases.—Dr. Robertson reported a case of sudden death; young green horse falling dead after ascending a hill, in which post-mortem revealed internal hæmorrhage as the cause of death, due to the rupture of some large vessel, but as the post-mortem had to be held by the light of a lantern, they did not learn just what vessel it was.

Dr. Clayton reported several cases of sudden death that had come under his notice. One, while scoring heats on a race track, another in which death occurred while performing neurotomy, the animal being cast. Post-mortem revealed heart rupture, and a third one suffering with purpura hæmorrhagica.

Motion by Dr. Bell, that as an adjournment to Dr. Clayton's paper on "Median Neurectomy," read at the last meeting, he perform the operation upon a subject which *he* would furnish. After some discussion, it was regularly moved and seconded that the Secretary notify the members of the association, that a surgical clinic would be held at the American Veterinary College, on Tuesday, April 11 at 4 P. M. Seconded. Carried.

Ways and Means Committee.—Dr. Bell, Chairman, reported that there would be two papers at the next meeting and a surgical clinic in the interim.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A meeting of this society was held on March 21st in the library of the college, Prof. Chas. McEachran occupying the chair.

After disposing of some business the Chairman called upon Mr. Stanbridge for his case report, which was one of rupture of the suspensory ligament in an eight-year-old mare. While out driving this mare she became suddenly lame in one foreleg, was rested and blistered along the course of the flexor tendons, where the trouble seemed to be. She recovered for a time, but while out driving she became again lame, came down on her fetlock and foot turned up. She was destroyed and on post-mortem examination showed the suspensory ligament to be ruptured and in a gelatinous condition. The conclusion reached was that she had at some time been nerved.

This was followed by an essay by Dr. Moore on the subject of "Tuberculosis," as follows:

Tuberculosis is a contagious disease, due to the tubercle bacillus, discovered by Koch in 1882. Its prevalence in man is

so extensive that no disease deserves more attention. It exists in the lower animals to a greater extent than most people suspect, the dairy cow being most predisposed. Accessory causes of the disease are: (1) Hereditary predisposition; (2) dark, damp, ill-ventilated stables. The symptoms are not always present, and we rely nearly wholly on the tuberculin test. The characteristic lesion of tuberculosis is the miliary tubercle, which consists of three forms of cells—giant, epithelial cells, and leucocytes; the tubercles are devoid of blood vessels. The origin of the various constituents of the tubercle and their relation to the bacilli: The fixed cells of the tissue first show signs of change. They are induced to proliferate by the bacilli. The nuclei of these cells show karyokinetic figures, and both the giant and epithelial cells result from these changes.

The neighboring blood vessels are affected by the virus and from them an emigration of leucocytes occurs. This transformation is rapid or slow, according to the number of bacilli present. Changes in the tubercle: Caseous necrosis, or necrosis, and fatty degeneration of the structures.

Fibrous transformation occurs in chronic cases and when the bacilli are few. Softening is the result of caseation and ends in a cavity or ulcer, or it may accumulate without softening and undergo calcareous infiltration.

Post-mortem lesions may be found in nearly any organ of the body, the glands at the bifurcation of the trachea being especially predisposed.

The bacilli may be passed from a diseased animal from the discharges from the nose and mouth, discharges from the bowels, in milk, etc. It is transmitted from animals to man principally by the milk; also by the meat if not well cooked.

Infection of cattle may occur: Nine-tenths by inhaling the tubercle bacilli dried and suspended in air, one-tenth by the food infected. Rarely through copulation. From 1 to 2 per cent. of calves may be born with tuberculosis.

Butter and cheese factories are great sources of danger, the milk being all mixed and each patron taking home his share of the skim milk or whey and feeding his calves.

To keep clear of tuberculosis:

1. Do not buy any stock that has not been tested. 2. Keep outside animals out of your stables. 3. Do not allow consumptives to care for your stock. 4. Keep the stables well lighted, ventilated and drained.

Sanitary precautions to observe if tuberculosis is present:

Take up floors, partitions, etc., and thoroughly disinfect, applying the disinfectant by means of a spray pump; disinfect thoroughly or not at all.

Dr. Moore said: The great secret of keeping stock of any kind free from disease is carefully attending to the proper hygienic surroundings, judicious feeding, and avoiding all the causes that tend to lower a creature's vitality. Then should they be exposed to contagious diseases they are in a much better condition to resist its infective influences.

This proved to be a very interesting and instructive paper. Dr. Moore having had considerable experience with this disease was fully able to treat the subject from a practical point of view.

After tendering Dr. Moore a hearty vote of thanks the meeting adjourned. JAS. MCGREGOR, *Secretary–Treasurer.*

VETERINARY MEDICAL SOCIETY UNIVERSITY OF PENNSYLVANIA.

Meeting was called to order March 17, at 8 P. M. Mr. Newcomer was appointed critic. The programme of the evening consisted of an address by Dr. Alexander Glass on the "Different Breeds of Dogs." The members of the society were accorded the privilege of asking any question they deemed advisable. All were very well pleased with the interesting and instructive lecture.

Upon the adjournment of the meeting the members gathered in the assembly room, where a light lunch and smoker were participated in. Among those present were Drs. J. W. Adams, Alexander Glass, B. F. Senseman, C. J. Marshall and J. H. McNeall. The honorary president, Dr. Adams, entertained the members in an admirable manner. This affair also is enrolled in the archives of the society as one of those important events of student life. L. A. NOLAN, *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The following letter, from Secretary Stewart, dated April 21st, contains interesting data in reference to the forthcoming meeting and keeps our readers in touch with the developing programme:

"Plans for our meeting next September seem to be progressing rapidly, with every prospect of having a large and representative attendance and a well diversified programme, contributed by members from all sections of the country.

"The following members have expressed their intention to present papers: W. Horace Hoskins, C. C. McLean, of Pennsylvania; J. J. Repp, of Iowa; M. E. Knowles of Montana; Roscoe R. Bell, C. E. Clayton, H. D. Gill and W. L. Williams, of New York; W. H. Dalrymple of Louisiana; Charles Gresswell, of Colorado; L. A. Merillat, of Illinois; B. McInnes, of South Carolina; Wm. Herbert Lowe, of New Jersey; A. T. Peters, of Nebraska.

"Among the topics to be presented will be the following:—'Dairying from a Pure Milk Standpoint,' 'Routine Manipulations and Operations,' 'The Veterinarian in Public Life,' 'Diseases Peculiar to the Rocky Mountain Region,' 'Acetanilid as an Antipyretic for the Horse,' 'Arytenoideraphy a Practical Operation,' 'Diatetics,' 'Notes on Filaria Immitis.' I will doubtless be able to announce a number of other titles in the next issue of the REVIEW.

"I trust the local Committee of Arrangements will have so far mapped out its plans as to permit some outline at least to be published in the May REVIEW."

NEWS AND ITEMS.

"WITHOUT THE REVIEW I AM AT A LOSS."—*P. A. Girard, M. D. C., New Richmond, Wis.*

DR. J. F. BUTTERFIELD, of South Montrose, Pa., believes cryptorchidy to be hereditary.

SIX veterinarians took the Civil Service Meat Inspectors examination at Cincinnati on April 11th.

DR. FRANK MCCOY, of Chicago, attends to a great many "cat calls" and thinks it is good easy money.

DR. H. W. HAWLEY, of Chicago, is one of the large exporters of light drivers to England and the continent.

"DON'T combine acetanilid and digitalis; it will kill the animal," says Dr. Joseph Hughes, and he knows it will.

JUDD PHILLIPS, V. S., of Warringsburgh, Mo., has removed to Saratoga Springs, N. Y., where he is assistant to Dr. T. S. Childs.

DR. R. G. WALKER says: "Use camphor and lard for mammitis and allied inflammatory processes. It will do the work every time."

THERE were four veterinarians before the Civil Service Commission at Kansas City recently taking the examination for Meat Inspectors.

DR. JOHN H. MCNEALL has recently been appointed Assistant Inspector to the B. A. I. and assigned for duty at Buffalo, N. Y.

MRS. CAROLINE BECKER, of Buffalo, N. Y., announces the engagement of her daughter, Emma Nellie, to Dr. Louis Kenneth Green.

DR. LOUIS KENNETH GREEN, of the United States Bureau of Animal Industry, has gone to Detroit to take charge of the station at that place.

A. V. LANGE, D. V. S., of San Antonio, Texas, has been stirring up interest in meat inspection in that city by means of letters in the local papers.

DR. THOMAS CASTOR, of the B. A. I., was recently transferred from Indianapolis to Buffalo, N. Y., to take charge of the microscopic work at that point.

AGAINST DOCKING.—The Royal Agricultural Society of England has adopted a resolution forbidding horses with docked tails from appearing at its exhibitions.

"I CONSIDER THE REVIEW INDISPENSIBLE, especially to the country veterinarian endeavoring to keep up with the times."—*O. B. French, V. S., Honeoye Falls, N. Y.*

"I CANNOT DO WITHOUT THE REVIEW; it is a welcome visitor and sometimes a great help in time of need. Do not stop it without my order, and you shall have your pay without fail." —*M. C. Livesay, V. S., St. John's, Mich.*

ALEXANDER COCORAN, D. V. S., of Brooklyn, N. Y., died in that city in March of tuberculosis. Deceased was a graduate of the defunct Columbia Veterinary College, and conducted a shoeing forge in conjunction with his practice.

"I AM MUCH PLEASED WITH THE REVIEW.—Any assistance I can render your valuable journal I will cheerfully give." —*R. V. Smith, D. V. S., Frederick, Md.* [See that your neighboring fellow-veterinarian also subscribes.—ED.]

"I VERY MUCH PRIZE THE REVIEW, and can hardly wait until it reaches me from month to month. How any veterinarian can afford to be without such a valuable journal, especially in this far West, I cannot see. It is worth many times its cost."— *D. D. Keeler, V. S., Salem, Oregon.*

A VETERINARIAN COMMITS SUICIDE.—While temporarily insane, Joseph R. Hodgson, Sr., D. V. S., of Brooklyn, N. Y., shot himself through the temple in the stables of the American Transportation Co., a corporation for which he had been until recently veterinarian for a number of years.

DR. W. H. DALRYMPLE, of Baton Rouge, La., read a paper before the Louisiana Society of Naturalists at New Orleans, April 7, entitled "The Veterinarian as a Naturalist." It is in our hands for publication when opportunity affords.

THE clinic of the New York County Veterinary Medical Association, on April 11th, consisted in a demonstration of the operation of median neurectomy by Dr. Charles E. Clayton, at the American Veterinary College Hospital. About twenty-five members were present and many were the compliments paid the operator. It was for the relief of lameness caused by a cartilaginous quittor.

THE United States Department of Agriculture has arranged with Prof. Curtiss, of the Iowa Experiment Station, to collect information and data while abroad for the revision of the recent horse book issued by the Government. Secretary Wilson desires to keep the information in that publication as fresh and up to date as the facilities and appropriations of his department will permit, and Prof. Curtiss, who sailed April 1 on his journey, expects to obtain much data while abroad that will be interesting and important to our breeders.

MUSIC AS A CAUSE OF DEATH.—An exchange says: "Music caused the death of a beautiful three-year-old filly at Florence, Ala., the other day. A farmer drove the valuable young mare into town, and as he was driving up the principal street a brass band suddenly struck up its blatant music. The mare had that she dropped dead in the shafts of the trap. A veterinary surgeon who examined the carcass declared that the mare had died of heart failure, due to excitement caused by the sound of the unaccustomed music of a brass band."

A NUMBER OF CHANGES have taken place in the personnel of the meat inspection force at Missouri River points. Dr. John P. O'Leary has been transferred to Boston, and the change has relieved if not entirely cured an extreme case of homesickness. Dr. Richard Blanche has been transferred from the Meat Inspection to the Quarantine Division owing to ill health, and has been consigned to El Paso, Texas. Dr. James Otterman has been transferred from St. Joseph to Kansas City. Dr. W. A. Heck is transferred from St. Joseph, Mo., to Sioux City, Ia.

DR. W. T. MONSARRAT GOES TO MANILA.—In a private letter dated Honolulu, H. I., March 25, 1899, Dr. Monsarrat writes as follows: "I go from here on the 28th inst., on the mule transport *Conemaugh*, for Manila, P. I., as one of the veterinarians in charge of stock. We will carry some 300 mules, and

they think it is too much for one veterinarian, so they have engaged me to go. Dr. Welch came from San Francisco with them. I sincerely hope we will have good luck and do well with the stock. It is hard to say, as we will be very much cramped for room, and will have a 21 to 24 days voyage. I will return to Honolulu in the course of two or three months. Dr. Plummer is still at the Presidio, Cal., and not in Manila, as I saw in the REVIEW. I might write you an account of the life on a mule ship."

WHAT A SUBSCRIBER WANTS TO KNOW.—A correspondent using the *nom de plume* of "Subscriber" writes as follows: "Of late I notice quite a number of writers on flatulent colic in the REVIEW, and it appears that all lack a knowledge of treatment, as in nearly every case they lose the horse. As a subscriber to the REVIEW, I think it would be a good turn on your part if you would make known to your readers the best treatment in existence for flatulent colic, as there appears to be a lack of knowledge of the proper drugs to expel the gas and arrest fermentation of the stomach without the use of the trocar." "Subscriber" will bear in mind that the REVIEW editors are not possessed of knowledge upon this subject which is not accessible to all members of the profession, and that they are merely collectors of the observations and experiences of others, coupled with those of their own. We refer him to the legend which has for so long adorned the heading of the department of "Reports of Cases."

MISSOURI FARMERS' INSTITUTES.—The Missouri State Board of Agriculture is a very progressive department, if one may judge by its programme of meetings for the past autumn, as well as the variety of subjects discussed, and the cordial manner in which it addresses its constituents. The meetings continue for two days at each point, and three sessions are held each day. For October and November forty meetings were announced, and the subjects included questions pertaining to every phase of agricultural and live stock industries. State Veterinarian T. E. White was almost compelled to eclipse the cyclonic campaign of Candidate Bryan, as the programme made the following announcement: "Dr. T. E. White, State Veterinarian, will attend all the meetings, and talk upon the State Live Stock Sanitary Service, diseases of stock and the breeding of stock from a sanitary standpoint." If it were a lesser personage than the versatile White we would suppose that there was a misprint in the announcement.

THE WONDER IS IT LIVED SO LONG.—*St. Louis, Mo., Nov. 12.*—Despite the skill of nineteen veterinary surgeons and four of the best physicians in St. Louis, Movie, handsome King Charles spaniel belonging to Mrs. Emma Parker, of 1009 North Channing Avenue, died Wednesday. It was buried yesterday with more honors than many people pay to a member of the family. The dog was wrapped in a white shroud, carefully placed in a coffin and buried in St. Louis county. All the women friends of Mrs. Parker attended the funeral. A post-mortem examination revealed the cause of death as peach stones. Movie had been ill several months. When the doctors could not discover his ailment, Mrs. Parker applied to a Christian scientist. The latter wanted $3 for a book on the doctrine. Mrs. Parker was willing to pay the money, but she could not digest the book, so she had to abandon hope of Christian Science. She received letters from persons all over the country suggesting methods of treating the pet dog. Among these was a note from Mrs. J. R. Cohick, of Tuckahoe, N. Y. Each had a "sure cure," but it always failed to cure poor Movie.